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ALBIN DROUX says, in *Revue Int.*, that his bees located near a pine forest averaged 33 pounds surplus, while those $1\frac{1}{4}$ miles from the pines stored nothing. Editor Bertrand thinks it may be that the bees did not find the nectar, because of its lack of odor.

IF THE CONVENTION at Philadelphia was a failure, it wasn't the fault of W. A. Selser and other Philadelphians. But it was very far from a failure. [That is true. We never met at a place where bee-keepers as a whole in the vicinity did more to make us comfortable, and to give us a general good time. Most of the credit, however, should be given to Mr. W. A. Selser and to Mr. Hahman.—Ed.]

B. W. HAYCK reports in *American Bee Journal* that a caged virgin queen was forgotten, and liberated after a confinement of seven weeks. Two days later she was seen with marks of fecundation, and after three more days was laying. [This is very unusual. We generally set it down as a rule that, if a virgin queen is not fertilized within two weeks, she probably never will lay fertile eggs. She will either commence laying drone eggs or else the bees will get rid of her.—Ed.]

REFERRING to p. 677, I may say that, as a rule, my bees don't swarm before 9 A.M. nor after 3 P.M. If they are foiled in their attempts to swarm, by some device such as a clipped queen, they become desperate and defy some rules. But there are a good many exceptions where there is no interference, and I've had prime swarms at 6 or 7 in the morning, especially on a muggy morning. This summer a prime swarm issued after 4 on a cloudy afternoon, that being its first attempt to swarm, so far as I know.

"I DO KNOW that a wired frame is an expensive nuisance," says T. K. Massie, p. 680. That's the way Canadians and some others talked years ago, friend Massie; but they're wirers now. Please keep things straight. You say, practically, that wiring is a necessity with deep frames; and a thing that's a necessity

can hardly be called a nuisance. If you want to insist that shallow frames are better than deep ones, that's another question. [A very large number of bee-keepers have come to the conclusion that it is an expensive nuisance not to have frames wired. This is especially the case for out-yards where hives are hauled, or where frames are extracted on the "slam-bang" plan.—Ed.]

FOR SOME TIME the *American Bee Journal* has had a department called "The Afterthought," written by "Cogitator." Said "Cogitator" has confined his "afterthoughts" entirely to previous numbers of the *Journal*, commenting upon them in an exceedingly interesting and sometimes instructive way. "Cogitator" seems now to have given up the work, and one E. E. Hasty has taken his place. Mr. Hasty's initial attempt is so excellent that, if he can keep up the same pace in future numbers, there need be no regret at the early demise of "Cogitator." [Look here, doctor; it seems to me you are trying to "give something away." Better look out, or you will have Bro. York clawing at your bald head.—Ed.]

FOLLOWING the Grand Army with the U. S. B. K. A. convention has its disadvantages, but they are far outweighed by the one distinct advantage of low railroad fares that can not be so surely counted upon at any other time. By all means, let the settled policy be to follow the G. A. R. [The only objection that can be urged against following the Grand Army is the inconvenience at hotels, and the general crowd. But we had none of those troubles at Philadelphia; and I think that, in spite of that, Chicago, our next place of meeting, will be big enough, not only to entertain the Grand Army, but the members of the U. S. B. K. A., or what may then be the National Association.—Ed.]

PRESSING "barns" to the front is what T. K. Massie says I seem to be doing, p. 680. Hardly that. I recognize good points in them, just as I recognize good points in the Danzy hive. After a trial of two Danzy hives, I conclude that for my purpose the good points are not sufficient to counterbalance their disadvantages, although I have no quarrel with those who prefer them. As yet I am not willing to say I shall adopt "barns;" and until I say so

I'm not pressing them very far to the front. [I have been accused of pressing barns also, doctor; but, like yourself, I have not arrived at the point where I can recommend them. In certain localities I believe they might be the hive, especially if extracted honey is the kind to be marketed. I believe in giving every thing a fair show, and sometimes I champion the merits of a certain thing for the sake of drawing out both sides and thus getting at the truth. Whatever I may have said in favor of the barns has been with that end in view.—ED.]

COMMISSION MEN are getting the worst of it nowadays. All right, brethren; bat them over the head all you like; but wait till a year comes with big crops and no offers, and you may be glad to have a commission man work for you. I've seen the same thing in years gone by. A scarce year brought into the field many purchasers. Then came a year of plenty, and with few exceptions they dropped right back again into the ranks of commission work, pure and simple. See if it isn't so again. [I'm not one of those who believe that we can dispense with the services of the commission men just yet. Indeed, I do not see how we ever can. But if we can induce more of them to do business on a cash basis it will do away with some of the friction we find here and there.—ED.]

BRO. DOOLITTLE, you seem to have waited so long before answering my question that you have changed it into another question. You start out all right on p. 684 by saying the question is the yellow-maroon one, and then leave that entirely and answer about pure Italians. You ask where I was in the early seventies. Right here, Bro. Doolittle, and I distinctly remember the discussion about pure Italians. But that's not the question. The question for an answer to which I am waiting is this: "*Why didn't you before, in all these years, tell us that Italians were maroon and not yellow?*" [Now look here, doctor; if Bro. Doolittle is made to answer that question, where will this color business end? To even things up I will agree to give him a little bit of space on condition that you will agree to keep mum on the matter, no matter how saucy he talks. Perhaps he will be magnanimous enough to drop the matter where it is.—ED.]

FOUL BROOD is not slow in its action. Says H. W. Brice, in *B. B. J.*: "Spores require suitable and favorable conditions to supervene for the space of only half an hour in order to transform them into the virulent type known as rods, and these rods are capable of producing two generations every hour of their existence as such! A single spore is thus capable of infecting a whole colony of bees in a week, if it were not for the natural immunity of all living things to disease." [That foul brood is not slow in its action, some of us know to our very great sorrow. When it once breaks out in an apiary it seems to start almost everywhere at once. Years ago, when we had foul brood, after we had discovered it in two colonies we found it in a dozen or two others. After we had cured these up, then there would be a dozen more to take their place, and so on

until it went through our apiary. Then for a little time it would break out in isolated colonies.—ED.]

"SOMNAMBULIST," in *Progressive*, enters a protest against "inflated honey reports." A man has an extraordinary yield, and the bee-journals, as if short of other copy, print and reprint the story. Then the manufacturers tell what big piles of lumber are used for supplies, and the commission man says the stock of honey must be enormous, and prices must come down. A good bit in that, Sommy, but there are two sides. It isn't in human nature to catch a big fish and not tell of it. And is it fair to call it "inflated" if it's true? If our business is to receive the recognition we desire from railroads, legislatures, etc., we must let them see that it isn't a one-horse affair. All the same, Sommy, prices ought to go up; and if you keep talking about it that will help to make them go up. [Somnambulist strikes at a good point, and you have fairly put the other side. One thing should be well understood: A large demand for supplies during the season does not necessarily indicate a big honey-flow. In 1897, when so many factories were running night and day, the season was almost a failure.—ED.]

DR. DZIERZON relates in *Ung. Bienen* that he removed a queen from a colony, and the bees reared a new one that was lost on her wedding-trip. Opening the hive to give them some fresh brood he was surprised to find three fresh queen-cells with larvæ, from one of which a good queen was reared. He thinks that the three eggs from which the three royal larvæ came had been kept for three weeks after the removal of the queen. If correct, that may help to solve some of the mysterious appearances of queens in queenless colonies, and impure stock from purchased pure queens. [This same Dr. Dzierzon, a name that stands almost beside that of Langstroth, and who practically is the Langstroth of Germany, proposed a set of theories some thirty odd years ago which go to make up the very foundation of scientific bee-keeping. It is only within recent times that any one has risen to disprove any one of them; but so far as I have been able to determine they are not disproven by considerable. He has now proposed a new theory, and it seems one of the most reasonable that has yet been proposed for explaining how fertile eggs are sometimes found in a colony when no laying queen has been in it for a good many days. Poultry eggs will keep good for hatching for a considerable length of time; and why shouldn't the eggs of a queen, under favorable conditions? Why not call this Dzierzon's new theory, considering the fact that his old theories have come to be accepted as true?—ED.]

J. T. W., Va.—It is a little bit late to strengthen up your nucleus by ordinary stimulative feeding. The only thing you can do is to unite it with some other weak stock. If you haven't any other bees, put this nucleus in a double-wall hive and pack it well.



The chilly rains and gloomy fogs
Are heralds of a freeze;
"Daub up the cracks, pull down the quilts,"
Say all the thoughtful bees.

It's up-hill work to apologize; but a friend in Florida points out the fact that I alluded to Mr. Hill, the editor of the *American Bee-keeper*, as having gone to Cuba instead of Florida. Just allow me to transfer Mr. H. up to the latter place, and my up-Hill work will be done.



AMERICAN BEE JOURNAL.

A. H. Duff thinks the advantages of keeping bees in a house are many, as work can be done with them every day in spring, summer, and fall. There is little doubt that house-apiarists are receiving more favorable attention lately than for some years past. His article was written for the *Agricultural Epitomist*. It would be a good plan if more of our bee-keeping friends would write for the agricultural press.



A correspondent tells Mr. Doolittle that he has an occasional crooked comb when not using separators, and wishes to know how to avoid such. Mr. D. replies very pointedly:

The very admission of both yourself and the writer quoted, should convince you that the only way to produce section honey, in the most marketable shape, is to use separators. When a person admits that occasionally he has crooked combs by the non-use of separators, I always read between the lines that those occasional crooked combs can be multiplied by ten and not be far out of the way. And then those occasional crooked combs condemn the use of any system which gives an occasional faulty thing, when there is a system equally good in every way that does not give a single faulty section along the line of crooked combs.



FOREIGN MATTERS.

Our French exchanges show a great amount of work in collecting information relative to honey and bees. Bee-keepers of that country, as well as of Germany, seem to be closely related to each other through the numerous associations they have formed. If a new use for honey is found it is immediately printed and passed around. Mr. J. B. Leriche, an eminent bee-keeper of France, has the following to say relative to honey; and although some of it is familiar to most of us, it is a good plan to give it to those who may not have seen it before. I translate it from the *Revue Ecclétique*, of Paris, one of the best bee-journals printed:

"Honey is a healthful, concentrated, easily assimilated food, offered to man by nature, all prepared, extracted drop by drop from myriads of flowers. Our ancestors made of it their favorite food. They knew no other sweet. The introduction of beet sugar has lessened the use of honey, so the latter is hardly ever found now except in the home of the bee-keeper or in certain medicines, or on the table of a few

who know its virtues. We should go back to honey, for it is well known that this food, without rendering necessary any insalivation or digestive work on the part of the stomach, excites nervous energy, gives mental force and tone to the vital functions, and is very beneficial to persons of sedentary habits or those doing much headwork. All those who suffer from disorders of the stomach, and who have difficult or bad digestion, or those subject to constipation, should use honey daily; and after several months they will find the digestive organs restored to their normal condition. But the use of it must be daily and prolonged.

"To live long, one should take, every morning, some hot milk, sweetened with a spoonful of honey, and dip bread in it. Taken at night, honey favors digestion and wards off sleeplessness. When Julius Cæsar dined with P. Rumillius, to celebrate the 100th birthday of the latter, Cæsar asked him by what means he had preserved his strength of mind and body. 'By eating honey,' replied the old Roman.

"But honey is not only a good food but a good medicine, curing, without drugs, disorders of the stomach, chest, and of the voice, such as gastritis, bronchitis, colds, asthma, and grip. The formic acid with which it is impregnated by the bees makes of it an antiseptic, purifying the disordered mouth and breath. Rheumatism is practically unknown among those who eat much honey. But the honey must be pure; and one buying it should be sure of the standing of the house selling it."

In the same journal Mr. Drappier gives good directions for wintering, preparations for which he begins in September. The first thing to be seen to is plenty of food. By waiting later the cold is liable to prevent the bees from uncapping the honey; and uncapped honey before winter easily ferments, and may induce spring dwindling. One writer says bees can winter only on empty frames; but at the same time their honey should be so placed as to surround the cluster, and as near them as possible. He feeds from 30 to 40 lbs. per colony. Although bees use but little food in winter he gives them enough so he will not have to feed in spring. He advises against spring feeding, as it may induce an abnormal development of brood. The best colonies will be hived in September on a maximum of 12 frames. Will it be necessary to remove the empty frames? Mr. D. says he does not. Mr. Bonnier has shown that a filled frame is equal in value to a partition so far as preservation of heat is concerned. That is, empty frames, instead of taking away warmth, tend rather to conserve it. Besides, frames of comb in the hives are better protected in fall, winter, and spring, against the moth-miller, by the bees running over them, than the bee-keeper could do it himself. This is for large colonies. Small ones run all kinds of risks. The existence of drones in a hive in September is presumptive evidence of queenlessness. Hives in the open air should be well protected on top. All cracks should be plugged up. Repaint covers, if necessary, so that not a drop of water can get through.

These foreign journals give a vast amount

of advice to those who must be beginner in bee-keeping. Every month has its detailed account of what to do and how to do it. In this regard they set a good pace for American journals. It might be remarked, too, that the foreign journals draw more from sources outside of beedom than do those of America; and there seems to be a more intimate touch between the government and the various bee-associations there than here. We get some ten French and German bee-journals here, besides one Spanish and one Italian. The French in particular are very interesting. Their printing is extremely accurate, an error being almost unknown, which remark applies to all the foreign journals I have seen.



FOUNDATION; THE OLD VERSUS THE NEW PROCESS.

Independent Experiments Carried on in Canada.

BY JAMES SHAVER, IN THE CANADIAN BEE JOURNAL.

[By the courtesy of the *Canadian Bee Journal* we are enabled to reproduce a series of engravings in an article that appeared in that journal for September. The

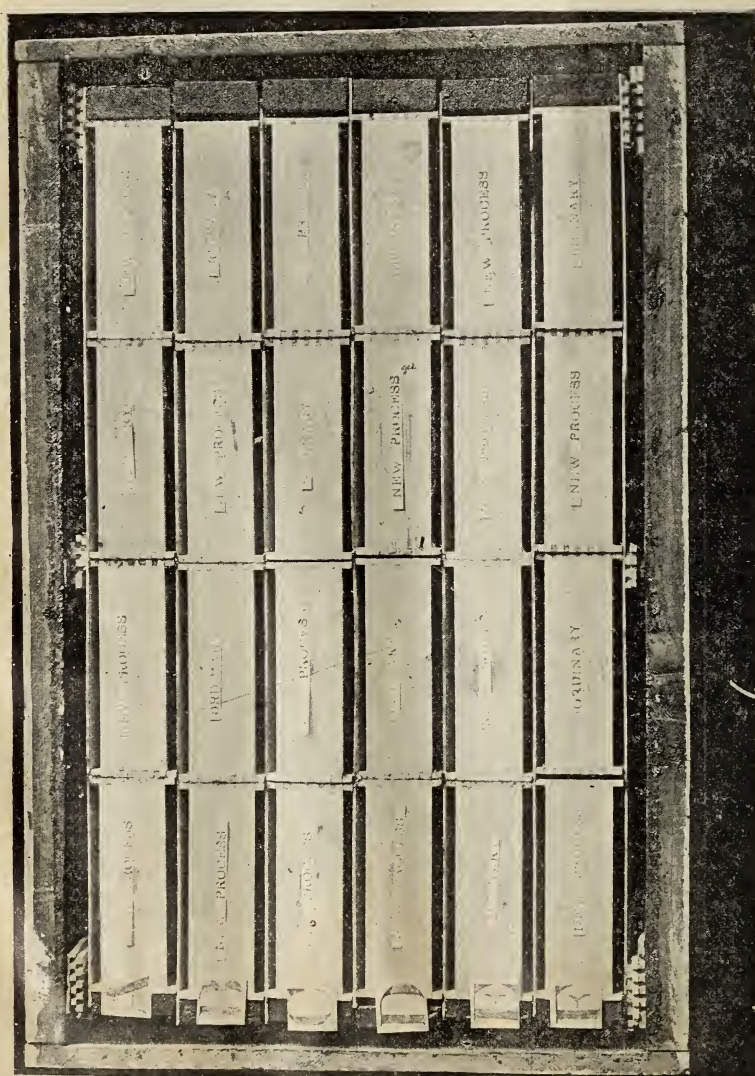


FIG. 1.—SUPER SHOWING THE RELATIVE PLACES OF THE FOUNDATIONS AS ON THE HIVE.

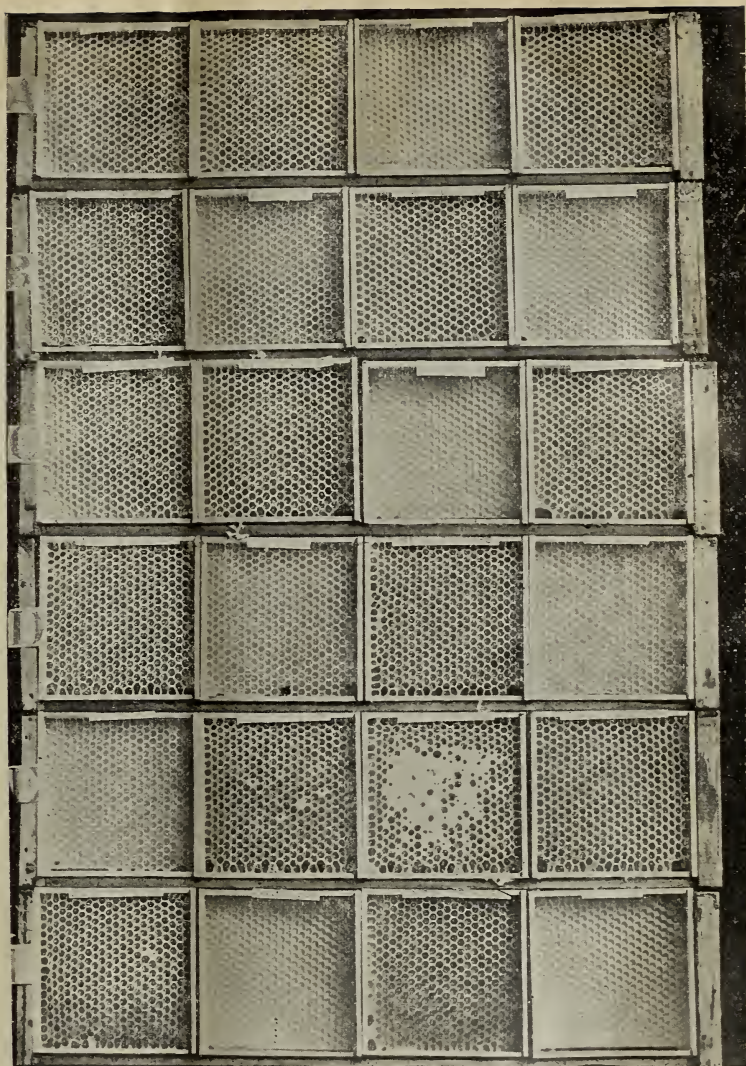


FIG. 2.—SECTIONS AS LEFT BY THE BEES WHEN REMOVED.

NEW PROCESS.—Line A, sections 1, 2, and 4. Line B, sections 1 and 3. Line C, sections 1, 2, and 4. Line D, sections 1 and 3. Line E, sections 2, 3, and 4. Line F, sections 1 and 3.

engravings are taken directly from photos, and will speak for themselves. In view of the fact that it might be considered that we have an ax to grind, I will offer no comment one way or the other; but I will explain that the big letters, A, B, C, in Figs. 3 and 4, and showing very dimly, run from left to right. The letter A, for instance, in Fig. 3, takes in the four sections immediately above it. The same is true of B and C. By carefully studying the pictures one can readily see which foundation seems to be the more pliable and workable.—ED.]

The relative values of the above for use in the comb-honey supers has been the subject of no little discussion and conjecture among our bee-keeping fraternity, and especially at our last meeting of Ontario it was brought forward with renewed vigor. Quite a number advocated strongly the old system—so strong-

ly, indeed, that I myself was almost a convert to their opinions. What their reasons were I don't know. I certainly believe that they were honest; but since then I have been doing a little experimenting that at least satisfies me on the point, and may perhaps be worthy of the consideration of others. On June 24th of this season I placed on one of my best colonies a super with sections and full sheets of foundation, old and new process placed side by side alternately. The "new process" was that manufactured by the Goold, Shapley & Muir Co., bought from their ordinary stock. They call it their "extra thin," and runs about thirty sheets to the pound. The old process, was supplied to me by a bee-keeper friends

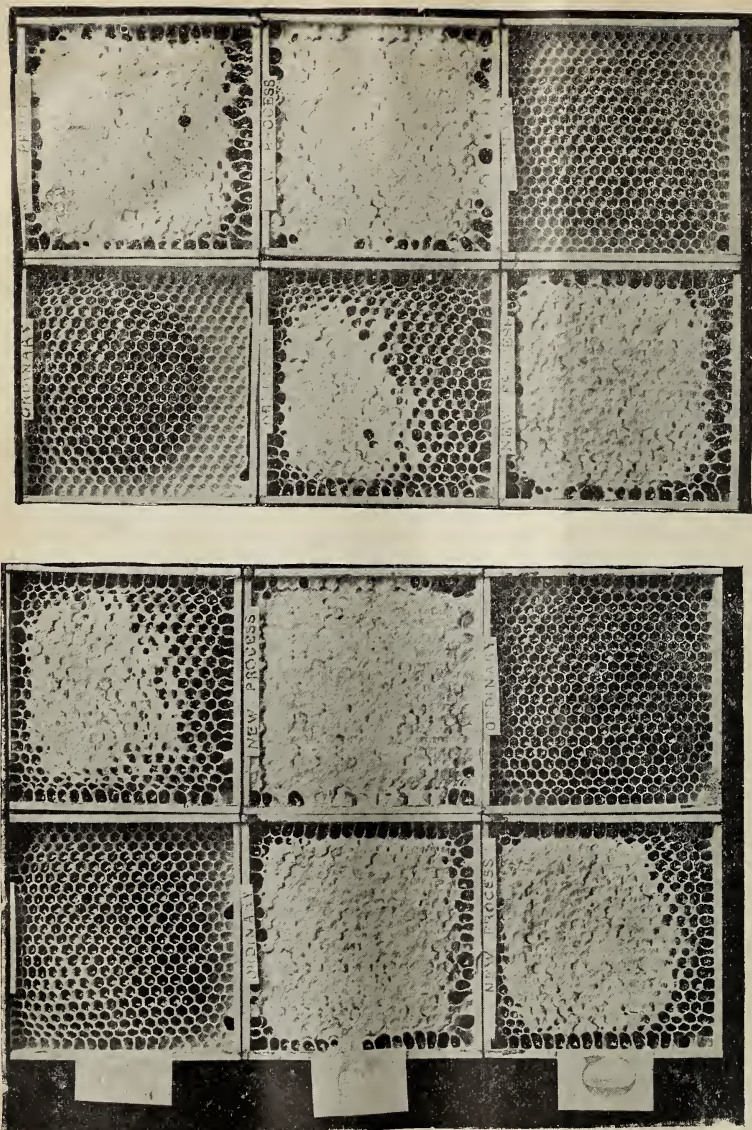


FIG. 3.—TWELVE SECTIONS TAKEN FROM SECOND SUPER AFTER CLOSE OF HONEY-FLOW. Line A, sections 2 and 4, New Process. Line B, sections 2 and 4, New Process. Line C, sections 1 and 4, New Process.

himself a manufacturer of and a believer in it. He like myself was interested in the matter, and wished that an impartial test might be made, asking me to conduct it. The foundation furnished by him was very fine indeed. I considered it as being about the best I had ever seen, well made, well colored, and ran about 20 sheets to the pound. I examined the super two days after, and found that the bees had taken well to the "new process," drawing it out nicely, while they had scarcely touched the old. I was somewhat surprised at this, as it was not altogether what I expect-

ed to find. On the day following, the 27th, I again examined them. The bees had continued to draw the new process ahead of the old. Two days afterward I removed the super and had the accompanying cuts taken of it. They will explain themselves.

Fig. 1 shows the super as placed on the hive, and the relative positions of the foundations.

Fig. 2 shows the sections as left by the bees when I removed them June 27. You will note that the cut shows the sections occupying the same positions to one another as in the super.

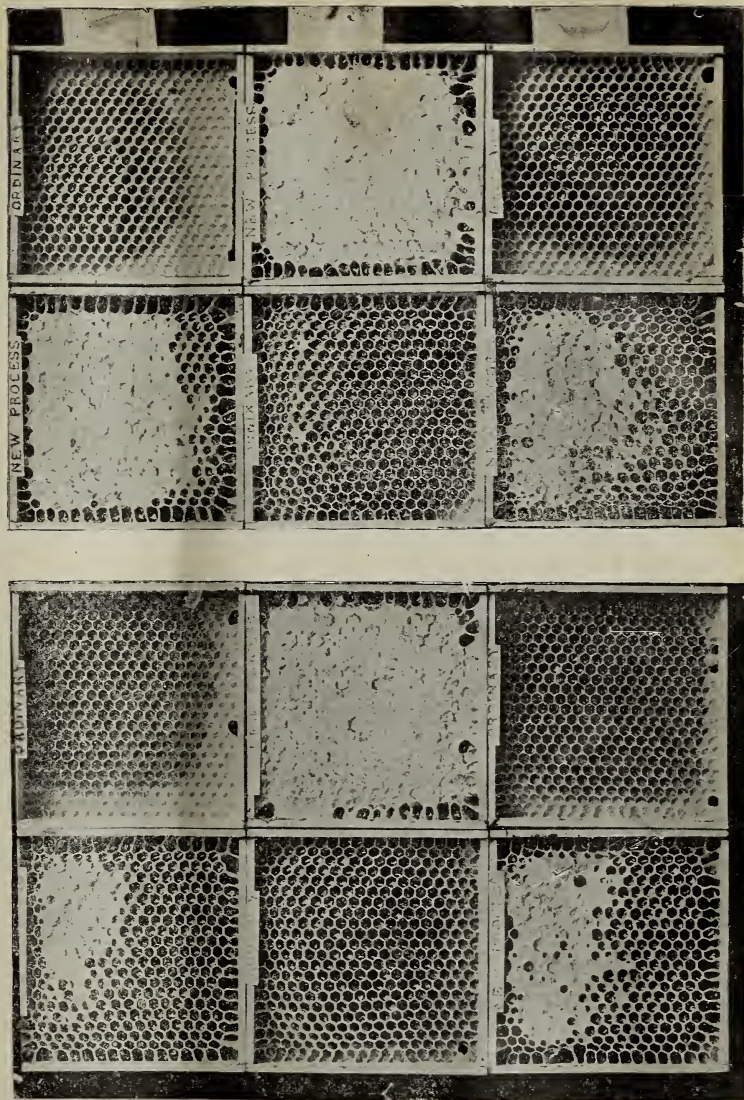


FIG. 4.—OPPOSITE SIDE OF SECTIONS AS SHOWN IN FIG. 3.

Line A, sections 1 and 3, New Process. Line B, sections 2 and 4, New Process. Line C, sections 1 and 3, New Process.

To carry my experiment still further, and lest there should be any thing in the surrounding conditions to make the difference, I replaced the super by another filled with sections and full sheets of both kinds of foundation as before, only using a heavier grade of the "new process," about 26 sheets to the pound. This super I left on the hive until the honey-flow ceased.

Figs. 3 and 4 show results. In this case I did not think it necessary to show super in full, so I have given cut of both sides of twelve sections as left by the bees, four from

each side and four from the center of super. You will notice that in each case the bees have taken to the new process in preference to the old, and followed the same until completion. I intend taking the super and section with me to the Toronto exhibition, where any of the friends can see for themselves. I will reserve them also for our winter convention at Brantford to give our worthy "Senators" an opportunity of examining and discussing the value of the experiment.

Cainsville, Ont.

RAMBLE 176.

Some of Rambler's New Inventions.

BY RAMBLER.

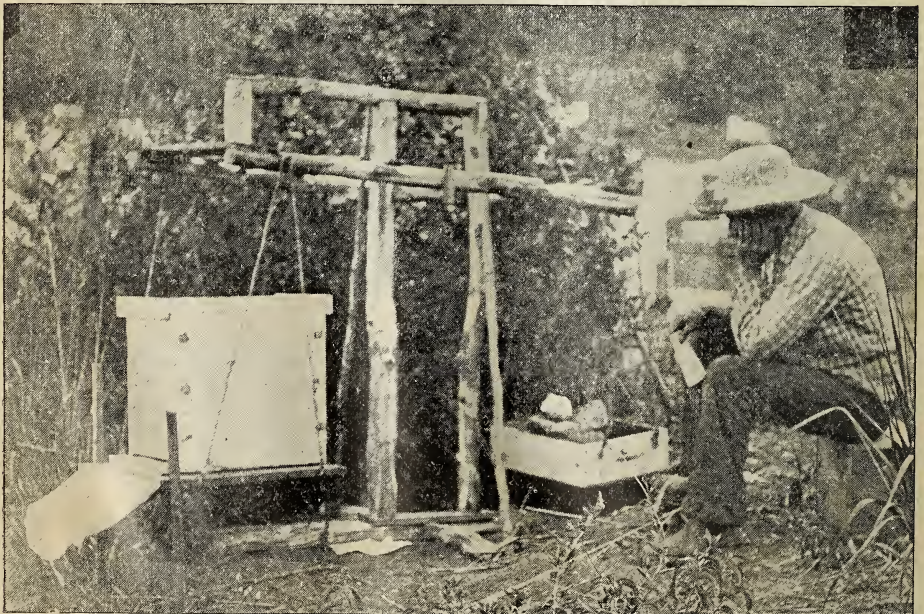
The various devices illustrated and described in the last Ramble all look fairly well constructed, and some effort was made with plane and paint to make them so; but the leading device presented to you this time will not fall under that rule, for it is a rough-and-ready affair. As the illustration indicates, it is a bee-hive balance. When Mr. McNay, of Wisconsin, and I were perambulating around the country we were talking about the sudden yields of honey that sometimes favored the bee-keeper, and how handy it is to have a colony placed upon scales in order to tell just how many pounds the colony was gaining or losing each day. My Wisconsin friend said he had a colony on scales all through the honey season, and a glance at it showed whether the conditions were encouraging or discouraging. The conditions have always been so encouraging in his apiaries that he could afford to pay a good price for proper scales. But, alas! no California bee-keeper can indulge in such a luxury these hard times. I did not wish, however, to be behind any Wisconsin man in regard to scales, and began to devise ways and means to make a balance that any poor California bee-keeper can make at light expense, and one that would attract the attention of all beholders, and thereby enable us, in spite of hard seasons, to keep up with and be a little ahead of the times.

A mountain fire had spent its fury in a little canyon near my apiary, and left quite a num-

ber of young sycamore trees dry and bare, and from these I made the framework of my balance. There is no use for me to enter into details of construction, for the photo faithfully represents every part, and any one handy with saw and ax can readily make one.

When in use a hive of bees is placed upon the swinging platform as shown. Now balance the colony or take off the tare by placing stones in the box at the far end. Put in enough stones to a little more than balance, and elevate the hive to the highest point. Now hook on a spring balance and adjust aright, and every pound of honey gained will be shown. If in doubt about the season, it is well to adjust the balance so that the hive will weigh six or eight pounds; then the balance will show loss or gain. This whole affair cost me just ten cents, the price of the spring balance, which was purchased at a ten-cent store. If the constructor wishes to be a little more extravagant, a 25 or even a 50 cent balance can be used. Then I spent half a day in the construction of it; and, as the name signifies, it is rough and ready. It is not so accurate as a five-dollar scale, but it is sufficiently so to show the half-pounds; and, accordingly, to judge of the conditions of the apiary it will answer the purpose very well until we get as rich as those Wisconsin fellows and are able to invest in store scales. As the platforms of this scale have more or less swing to them it is well to drive stakes around them as shown, to prevent any accidents, especially in a breezy location.

This balance has been doing duty for several weeks, and faithfully gives a fellow the blues by recording a loss instead of a gain. The



RAMBLER'S IMPROVISED SCALE.

inventor is sitting near the machine, and that is his pensive attitude when devising new machines.

In the next photo I try to show you another real improvement, but I fear the attitude and the surroundings of the person may cause a smile. The first person who saw the photo said, "Why, that looks like a ghost."

"Alas," said I, "it is a ghost; see how gaunt he is; and that is only a type of a Southern California bee-keeper after these two dry seasons."

The next observer said, "I declare, that fellow looks like an Arab."

I had to agree with that observer too, for the fellow looks as though in feelings he were an Arab. Let's see. The Bible says, "Everybody's hand is against him."

Then an observer sagely says, "That is Giant Despair sitting at the entrance of his cave."

"My friend," said I, "you are mistaken. Giant Despair lives there, but he has gone into the cave with one victim, and this poor bee-keeper is now waiting his turn."

But, dropping allegory, and turning to facts, I would say that the peculiar place shown is about fifty paces from the apiary, and that hole is a tunnel which has been blasted some three hundred feet into the solid rocks of the mountain, and the object of digging these tunnels is for the development of water for irrigation purposes. As the bucket signifies, that is where I get water; but the pipe leading down is from another tunnel further up the canyon and 400 feet in, and another tunnel further down over 400 feet in. There is over \$2000 invested here in tunnels, pipes, and reservoirs, and all for a little water; but this water is as valuable as a gold-mine. A little stream that would almost all go through a goose quill is worth a hundred dollars a year.

But I fear I am digressing, and withholding the information about that new and notable improvement. Well, if you must know, it is all about that bee-veil, and the new feature is in the face of it. The reason why I was led to the study of bee-veils was that the ordinary fine silk net that is used in ordinary bee-veils is so fragile that it breaks open in spots and allows the bees to enter. I have purchased such netting at stores that was, I was going to say, rotten, and I guess that is about as good a term as any to express the quality. A bee keeper in almost any country is liable to get his head

against a bush or a limb of a tree, and every bee-keeper knows how handily a twig will catch into a veil and rend it. Then a silk veil is worth from 50 to 75 cents, and is of such value that it ought to last longer. The veil I present in this peculiar illustration has an old material for the back, and a new material for the front—at least I have never heard of its being used for this purpose. It is very thin, very transparent celluloid—as transparent as glass; very light, and quite flexible; and a large piece of it that will enable the wearer to



RAMBLER'S CELLULOID BEE-VEIL.

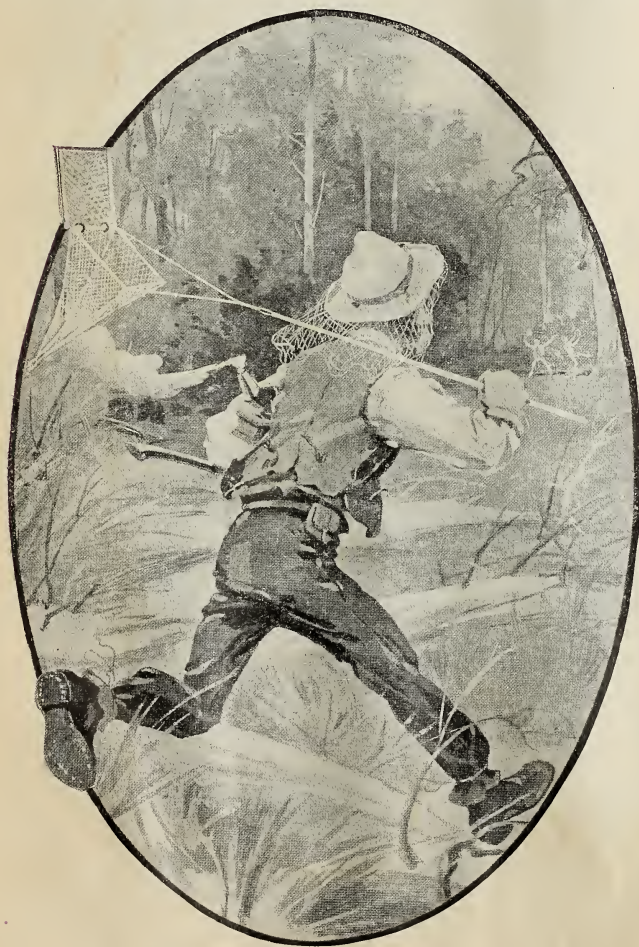
see in every direction costs about 8 cents. The celluloid is attached to common white mosquito-netting. The total cost of material for the veil is about 12 cents; and when the bachelor bee-keeper has plenty of leisure the making of it becomes a pleasure.

When I first donned the thing I thought I should not like it; but now after a few weeks' use I am more and more in love with it. There is but little reflection from the bright surface into the eyes, and the reflection bothers only when the sun is not shining. The mosquito-

netting, besides being cheap, is of large mesh, and allows a free circulation of air. The color, also, adds to the comfort.

And the hat—I almost forgot that. It looks like an ordinary wash-basin bottom up. I do not use that habitually, but put it on just for effect. It belongs to Sam Wong Sing, a heathen Chinese. He was sent up as helper in one of the tunnels; and, though the Chinamen here use American hats, Sam brought this one along so that it would protect his head from the dripping water in the tunnel.

I hope the readers of GLEANINGS will notice how I have reformed during the preparation of the two last Rambles. I was in hopes to continue the reformation; but so far as my new inventions are concerned, my stock of them is about exhausted—the pond has run dry. Then Mr. Brodbeck has secured my services to go with him to the mountains on a prospecting-trip. It is a “gold-mine or bust,” and, having him for company, I greatly fear that I shall have a relapse from my excellent resolutions. Any way, I will let you know all about the gold-mine.



ADVANCE, AUSTRALIA; AFTER APIS DORSATA. SEE PAGE 725.

THE UNCERTAINTIES OF BEE-KEEPING.

Some Records of Past Honey Crops.

BY H. LATHROP.

There is no branch of agriculture so apt to mislead a beginner, and inflate him with the belief that a fortune for him is just ahead, as that of bee-keeping. He figures from results that he has secured on a small scale, and argues that all he has to do in order to bring about the same results on a larger scale is to increase the business. So argues the novice; but sooner or later he strikes an adverse season, and, lo! his bubble is burst, and he begins to realize some of the uncertainties in this line of business. Then he may go to the other extreme of discouragement, and dispose of his few remaining colonies for about what the bare hives cost him in the first place. He should not do so, however, but take care of his hives and combs; do the best he can, and wait for better conditions. Other branches are subject to failures. The farmer is never certain of a crop when he puts in the seed,

but on the whole his occupation is as certain to bring results as any other, and more so than many. So it is with bee-keeping. We can form a correct estimate of the relative value of the industry, as compared with others, only by taking a number of years together. For my locality I have records of each season dating back to 1885, during which season we had a very small crop of honey; still, it could not be called a failure.

The season of 1886 was an ideal one. White clover was abundant, and lasted a long time; basswood could not be better than it was then. I remember how one could literally see and taste the clear shining nectar in the blossoms. The season of 1887 was a failure on account of extreme drouth. The season of 1888 was phenomenal in honey-production. Bees came out rather weak in spring, but built up on white clover, getting in shape for basswood, which lasted three full weeks. When basswood closed, the bees began working on the large wild sunflowers and other autumn flowers, which continued to yield honey until frost came. During that season I had colonies that produced over 200 pounds of comb honey in one-pound boxes; others did nearly as well. One hundred colonies of bees in good condition to begin the

season, and properly handled, ought to have made the owner \$2000 clear, as honey brought a better price then than it does now. I received 18 cts. per pound in job lots for part of my comb honey.

For the years 1889, '90, '91, and '92, the honey crops were light to fair, but there were no total failures. The year 1893 was a great white-clover year, and gave us a splendid crop of honey. In 1894 there was no white clover, but basswood was a full crop, and lasted as long as it was ever known to in this region. The bees worked on it 25 days. Just after the close of the basswood flow, Ernest Root visited us and found the bees storing quite rapidly a very light amber honey, the source of which I never fully learned. The year 1895 scored another total failure, bees getting just enough honey to winter on. In 1896 we had a fair crop, mostly from basswood. In 1897 we had another great white-clover year. The pastures in this county were covered as with a white sheet. In 1898 there was no honey at all from clover, but basswood gave a fairly good yield.

Thus we see that, during the years 1885 to 1898 inclusive, or fourteen years, we have recorded five full crops, seven of which were light to fair, and two total failures. Taking it for granted, for convenience' sake, that the present season of 1899 will score another failure (which I do not think will be the case), we have, as a result, one total failure for every five years; five heavy crops out of fifteen, or one in three years, and seven medium crops in fifteen years. This gives us a basis on which to estimate the probable results in the future, and is very valuable to the one who expects to make bee-keeping his principal means of support. Some localities can show a better record than this, but there are a greater number that can not show as good.

One can see from this record how important it is to have a location with a diversity of honey-producing plants. In my location the fact that the field produces both white clover and basswood prevented me from having several more failures of crop during the time recorded.

Some may ask what I consider a full crop on my field. I will state it in round numbers easily remembered: 100 lbs. of comb honey per colony, spring count, for a full crop; 50 lbs. half crop, and so on. From this it would not be difficult to figure out just about what a good bee-keeper *could* have done in those past 15 years.

Location is a great factor; but management, I believe, is the most important of all. How many Doolittles have we among bee-keepers? Very few. I know that I am not one, for, as I once said to a friend, "I get well paid for neglecting my bees." That means that I have other business that prevents me from taking the nice care of the bees that they deserve. But there are some keeping bees in Wisconsin who are so ignorant and negligent that they will tell you they expect their bees to do well when the basswood comes in bloom, whereas basswood has come and gone, and the poor bees had no surplus-arrangement provided in

which to store the honey, so they just plugged their brood-combs what they could, and then loafed, or in some cases built a piece of comb on the outside of the hive.

Browntown, Wis., July 15.

[If any thing, the locality in which Mr. Lathrop lives is better than the average one; and if that is the case, then the general status of bee-keeping over the United States is not as good as in the immediate vicinity of Mr. Lathrop. We want the plain, unvarnished truth; and it is only fair to the veterans as well as to the beginner that such truth be known. Many novices become excited over the proceeds procured by a neighbor *in one season*, and then they go in and "divide profits" by putting more bees into a locality that is already well stocked, and just barely capable of supporting *one* honey-producer.—Ed.]

"FIVE-BANDER" EXPERIENCE.

Narrow Frame-spacing; Shade for Hives.

BY A. NORTON.

Friend Root:—I do not wish to discuss a matter that I have written about in former years, when you intimated that I was partly theoretical, but to confine myself to matters of fact. I wish to say that I have continued to test, since my articles on the subject in 1895, the five-banded Italians side by side with the common Italians of three bands. I have had the golden bees of several breeders, and have obtained the three-banders also from various sources. I have not failed to get the stock that promised best. I have purchased queens from breeders of three-band stock who have bred especially for industry, etc., and who have claimed to have a superior race of red-clover three-band Italians. The result of my comparisons for now five seasons is as follows: Just as good "red-clover" Italians are bred by one eastern dealer whose queens are golden Italians as come from "red-clover" strains of three-banders. I do not live where I can test the working on red clover. I refer to their respective merits where red clover does not grow. But I have no doubt that the clover-working carries out the same equality in red-clover countries. All the strains of five-band bees that I have tried are as hardy as are any three-banders. They are as active and industrious, and hence as good honey-gatherers.

I had this season my best honey-record from five-banders, with three-banders and a Carniolan cross in the same yard. The bees vary somewhat in temper, but no more so than do the regular Italians. I have found some cross ones, but equally cross three-banders of pure stock, so that I can rely upon the five-band temper with equal certainty as upon that of the three-band Italians. Some of the gentlest bees I have ever seen were five-banders. The five-band (or golden) queens are, "in this locality," just as long-lived as are any queens I have ever had, preserving their usefulness for as long a period. Therefore, with no the-

ories to advance now, though I still hold them, I find that my practice and experience commend the golden Italians, and warrant me in continuing to keep them till they fail to keep up their record.

Regarding what you said last season about $1\frac{1}{4}$ -inch spacing for brood frames, and consequent freedom from drone comb, I was impressed therewith, and resolved to try it. This year I made some closed-end frames with end-bars $1\frac{1}{4}$ inches wide. I placed good reasonable starters of either worker comb or worker foundation therein, and gave them to a colony that was not strong enough to want to build drone come at the time. To make the experiment a fair one, the conditions should not be made such as to insure worker combs, even with wider frames; so I did not keep the colony reduced to few frames at a time, as practiced by Mr. Doolittle when getting worker comb built; but I gave them all at one time to the colony, and then left matters to take their own course. The frames were clamped tightly together with thumbscrews, so there was no possibility of their being more than $1\frac{1}{4}$ inches from center to center. The bees were half-blood Carniolan and golden Italian. From the worker cell starters in part of the frames they built about half or more than half of drone-cells. From one such starter they built a solid sheet of drone comb, filling the frame. From about half the starters they built nice worker comb, but in two such combs I found large quantities of drone brood in worker-cells, though the queen was a vigorous one, as shown by her record before, and also since upon being shaken with the bees into a hive with all worker comb. Hence I conclude that $1\frac{1}{4}$ -inch spacing is not to be depended on to insure all worker comb.

Regarding what you, Dr. Miller, and others say about shade as being beneficial for bees, it has been my experience, the result of extended observation in various parts among the coast valleys of California, that bees in the shade are invariably as cross as can be endured, when the same bees in the warm sunshine will be tractable. Moreover, the honey will be sealed over in a thinner or less ripened state in the shade. The reason of both conditions is not hard to seek. Shade, then, is eminently a "question of locality."

Monterey, Cal.

[I do not remember, friend N., where I ever intimated that you were "partly theoretical," and where I ever asked you to "confine yourself to matters of fact;" but I know that I have held that the only merit of *many* of the so-called five-banded stock was their color; and I believe that I have stated that some of them are cross, and seem to have been bred originally from Cyprian blood; that others of our yellow stock have been short-lived, and have been the first to succumb to winter; but I do not think I have anywhere claimed that *all* five-banded stock had such characteristics; in fact, I have plainly stated that the queens from two of the breeders were not only beautiful to look upon, but were gentle, and good workers. It is one thing, however, to rear

yellow stock having color only, and another thing to combine color with business; but it has been done, nevertheless, and you, doubtless, have secured some of this stock.

But I have contended that the rage for color on the part of many careless queen-breeders has resulted in getting color and nothing else. I know this to be a fact, because we have bought such queens, and the result has been that we secured some very cross bees, and colonies that died off in winter.

In all these things there are extremes both ways, and I have intended to hold middle ground.

With regard to $1\frac{1}{4}$ -inch spacing, if I have ever said that such a distance would result in "freedom from drone comb," I do not remember it; but I have said, and would refer you to the ABC of Bee Culture, that close spacing has a *tendency* to produce more of worker and less of drone. You do not say what were the other conditions under which that drone comb was built. There are some, you know, when nothing but worker will be built, even if only starters are given the bees. There are other conditions when, no matter what the spacing, a large percentage of store comb will be made.

I have tried to avoid extremes in statement; and if you can find where I have not done so in the above cases, I shall be obliged if you will point out the places. But regarding the value of close spacing, I would refer you to the works of Cheshire, Thos. Wm. Cowan, and to articles of Julius Hoffman, and scores of others who have used the wide spacing, and have finally adopted the close.—ED.]



BEE-LIFE — HOW LONG IS IT ORDINARILY?

Question.—One of my neighbors claims that the worker bee lives to be a year old, and sometimes lives to see eighteen months. Another claims that no bee in the hive ever attains to such an age, six months being the usual length of the worker bee's life, while the queen may live a year. In a paper I was reading lately, I see that thirty days is the life of a worker bee in the summer season. What are beginners to think when there is such a variety of opinions? Please tell us in GLEANINGS just how long the queen, drones, and workers live, under ordinary conditions, and thus confer a favor on the many beginners who read that excellent paper.

Answer.—Surely no one need be ignorant in regard to the length of life of the worker bee when one experiment would tell him the truth in the matter, and convince him that the average life of the worker bee is about 45 days during the summer season, or a half more than the time quoted from the paper, and $16\frac{1}{2}$ months less than that given by the first neighbor. Take a colony of black or German bees,

for instance, and about the 10th of June take their queen away and introduce an Italian queen, keeping record of the date on which the change was made. In 21 days the last black bee will have emerged from its cell; and if the Italian queen went to laying immediately, the first yellow bee will have made its appearance, the time of the appearance of the first Italian bee being jotted down also.

At the end of 45 days from the time the last black bee had hatched, no black bees will be found in that colony. At 40 days plenty of black bees can be seen, they becoming fewer and fewer each day, so that on the 44th day there will be very few indeed left. This is for the summer months, and does not apply at all to those of the winter. The life of the bee depends upon the work it does. Thus when it labors the most its life is the shortest. Hence it comes about that, through the inactivity induced by cold weather, the bee can live from seven to eight months. This is proved by changing the queen as before, only it is done this time about the middle of September. Soon after the first of October the last black bee will have emerged from its cell; but I have often found a few black bees on June 20 of the following year, in a colony so treated. Also when spring opens, or about the first of April, there will be very few yellow bees in this hive, which shows that but little brood is reared from October until April, as well as telling us that more bees die in two months in the spring than during six months of winter; hence all possible precautions should be taken to preserve the life of those old bees during the spring, so that they do not die off too suddenly, or have what is known as spring dwindling before the brood has emerged from the cells in sufficient numbers to keep the colony in a prosperous condition.

The life of the drone is regulated very largely by the workers, for drones are usually killed or driven off by the workers long before they would die a natural death from old age. Any sudden cessation in the flow of honey from the fields is often considered sufficient reason for their being driven off, or out of the hive to die, or the killing of them by stinging, if they are persistent in staying in the hive, so it is hard to tell just what age they might attain to were they allowed to live to the good old age allotted to them when not persecuted by the workers. Most apiarists think that the drones would live to about the same length of life attained by the workers; but from a close observation with those which I have tried to preserve in queenless colonies for the late fertilization of queens during the fall months, I am of the opinion that they are of a little shorter life. It is a rare thing that I have found any out of a certain "batch" to be alive after 40 days from the time the last one emerged from the cell. Unless some precautions are taken it is a rare thing that any drones are allowed to stay in the hive after the honey harvest is over in the fall; still, we have a few reports where drones have been wintered over, and I have had them flying in mid-winter when the bees were out for a cleansing flight.

The average life of the queen is about three

years, although some have been known to live more than five years. A man at the convention of the United States Bee-keepers' Association, recently held at Philadelphia, told me that a queen he purchased of me lived to be five years and five months old; and I had one, purchased of Mr. A. I. Root some twenty years ago, live to be five years and four months old, she doing good work up to the last month she lived. Queens live also in proportion to the work they do, or according to the number of eggs which they lay, as egg-laying is the only work queens perform. Under our present system of management, most bee-keepers coax the queen to lay as many eggs in one year as she usually would were she in an old tree or box hive in two years; hence most apiarists think that all queens should be replaced after the second year with those which have just commenced to lay. There is no question but that a queen reared during July, August, or September of any year will do as good work the following summer as she ever will; but it is a question whether it will be a paying undertaking to remove the queens in the apiary at the end of their second summer's work, and then replace them with young queens. I have experimented along this line to a considerable extent, and the result is that I do not now make it a practice to supersede my queens every two years, for I find that the bees are quick to understand when their mother is failing, and will supersede their own queen when she gets to be too old to be of service to them; so I trust the matter to the bees, believing that they know what is best for them in this respect better than I do.

CALIFORNIA ECHOES

BY J. H. MARTIN.

Monterey Co. has produced a little surplus; San Diego Co. also secured some, but all told there is not enough for the home demand.

I learn that Prof. Cook has gone east for making a few calls. There is no use for us to ask you to treat him well for we know you will.

The exports of honey from the San Francisco markets by sea for the past week have been only eight cases, which at this time of the year is about as light a shipment as was ever made since California became a honey-producing State.

This, from an interview with Secretary of Agriculture Wilson, who recently visited Southern California, will be of interest to all bee-keepers in arid America:

Explorers for our department have found in Russia a species of vetch that is to be tried on this coast. Then we have a dry-land alfalfa that we want the farmers to try. This flourishes in Turkestan without irrigation.

Now, we are wondering if that alfalfa will become a good honey-plant. If there is any seed of that plant to be had we shall try it.

J. J. Rapp secured several tons in Ventura Co., while the rest of the bee-keepers got but little if any. His apiary is located well up in the Matilija Canyon, where the clouds could bump against the mountains and cause them to shake out some of their moisture. A. I. Root will remember the Matilija with its hot springs and bathing facilities.

I clip the following from a late number of the *Los Angeles Times*:

At the graduating exercises of the Pasadena High School, the speaker of the evening, Rev. C. G. Baldwin, ex-president of Pomona College, in touching upon the subject of heredity, with a view of illustrating what he claims is the small influence of heredity and the overwhelming effect of environment and education, referred to the worker-bee and the queen-bee. The latter is worth just 40,000 times as much as the former; but they come from the same egg; and the food and room for twenty days, he says, make the difference, deciding whether the bee shall be a worker or a queen valued at 40,000 points more. The speaker expressed his adherence to the doctrine set forth in one of the latest works of a great German psychologist, to the effect that there is no inheritance of intellectual or moral quality where the inheritance is wholly corporeal. Many will dispute this theory.

Did you notice in the *Review* for July what Dr. Mason says about a certain portrait of Doolittle that appeared in a certain bee-paper a few months ago?

Well, like Dr. Mason, I conjectured a long time over that picture when it appeared, and concluded if that truly represented Doolittle's head he had degenerated wonderfully during the past few years.

Then I conjectured that the editor of said paper had, through mistake, printed a head of one of those terrible Chicago anarchists, and labeled it Doolittle, or perhaps out of spite because Doolittle gets off on to the socialism racket occasionally.

Then I had another conjecture, and I believe it is correct. Bro. Doolittle is a good kind soul, and he allowed an amateur photographer to take his picture. Why, Bro. Doolittle, the average amateur photographer will reduce the god Apollo into a chimpanzee. I know just how it is, for I am more or less an amateur photographer.



NO-DRIP SHIPPING-CASES; HOFFMAN FRAME WITH V EDGES SUPERIOR TO SQUARE EDGES, AND WHY.

Mr. Root:—Here is my vote on the no-drip cleat and the Hoffman frame with square edges. The cleats in the bottom of the shipping-case should be $\frac{3}{16}$ inch high. A bee-keeper who sees the need of cleats $\frac{3}{8}$ high must put out a poor class of honey. We are supposed to sell our cull honey around home.

Now a word about the width. The middle cleats should be $\frac{3}{4}$ inch wide; those at the ends of the case, $\frac{1}{2}$ inch. I can imagine how some persons would have much trouble getting narrow cleats in the proper place, in the middle of the case; and then, even if narrow

cleats are in the right place, the sections very easily slide off when handled by the store-keeper and retail customers. It is desirable to have the sections remain upon the cleats until the contents of the case are all sold. I have perfected a simple form for putting in the paper and cleats, which saves much time and avoids the necessity of exercising patience.

I have tested the V edge Hoffman frame side by side with the square edge. For two seasons I thought the square edge was the better one; but after looking over my bees this spring on a warm day I noticed some things that set me to thinking; and no doubt you have thought the same things. Without taking the space to explain just how it comes about, I will say that propolis accumulates between the square edges. Propolis also accumulates between the V and square edges. After two seasons your frames are occupying more room than they really ought to. The day is warm; you are very busy; and in attempting to get ten frames into a ten-frame hive you find that the hive is too small to admit them. What are you going to do? If your frames have the square edge you will have to stop and scrape their edges to reduce the spacing. Scraping propolis on a hot day is a mussy job. Well, if your frames are the regular V edge, just squeeze them all up together with your chisel or hive-tool. Give a slow steady push and the V edges will gradually cut their way through and then you are ready for the next hive. If I were going to order some Hoffman frames to-day I think I would take the regular stock—the V edge.

Eden, N. Y., April 24. E. W. BROWN.

[A very few of our customers have complained because we insisted on putting the V edge on all our Hoffman frames. Mr. Hoffman, the inventor of that particular frame, uses the V edge, and for very good reasons; but, like some of the rest of our friends, for the first year we began using our Hoffman frames without the V edge; but one season's use in the apiary convinced me that it was a mistake. It is somewhat refreshing in these latter days to know that some of those who advocated and even insisted on having their Hoffmans made with square edges are now coming to the conclusion that the V edge is about right after all. Mr. Brown is not the only one who has gone through that experience. Indeed, I have been through it myself. Dr. Miller was once very doubtful about the value of the feature; but he is now pretty well satisfied that if he used the Hoffman frame he would use it rather than go without.—ED.]

PRETTIEST OF COMB HONEY FROM PLAIN SECTIONS AND FENCES.

I tried quite a number of the Ideal plain supers this season, and must say, give me fence separators and plain sections. I have the prettiest comb honey most of us in this part have ever seen. I have also been trying Mr. Doolittle's plan for queen-rearing, and like it. I find that, to take a colony or even a strong nucleus in prime condition, made queenless, and furnish cell-cups properly fix-

ed, will build excellent cells. I believe this is a combination of Mr. Doolittle's and Mr. Alley's plans.

J. W. BEAUCHAMP.

Hatfield, Mo., July 9.

LOOSESTRIFE AS A HONEY-PLANT.

Find inclosed a honey-plant which please identify. It is just now closing the blossoming season of about two months' duration. Bees work on it freely all day, and in great numbers. The specimen I send you was cut in two twice, but shows the whole plant. It grows in bunches, or four or five together, and is usually found on low or marshy land, but sometimes on upland.

M. F. TATMUN.

Rossville, Kan., July 25.

[Answer by Prof. Selby.]

The plant is a species of loosestrife—*Lythrum alatum*, Pursh. This is of interest to botanists, especially because of its dichogamous forms. Some have short stamens and long style, others long stamens and short style. This is generally recognized as a device for securing cross-fertilization, and, in a secondary sense, doubtless serves as a form of inviting the work of insects. I am unable to say any thing as to its character as a honey-plant.

A. D. SELBY,
Botanist.

Wooster, O.

ENTRANCE THROUGH THE SUPER.

In Stray Straws I see where a French bee-keeper closes the regular entrance and gives the bees entrance through the super. Mr. Root, that is all right. I have been doing that more or less for the past ten years with good success. It must be done at the right time, and the entrance closed at the right time. At no time have I left the entrance of the super open over 12 days.

D. C. BUCK.

Lawton, Mich., July 13.

THE STINGING BUG.

I often received the above bug, the one sent as referred to above, when in Michigan; from almost every Eastern State. It was common in Michigan. It hides in the yellow fall flowers, grasps the bees by means of its strong nipper-like forward legs, and sucks them bloodless by use of its strong beak. It is a considerable enemy of the bee, but also does much good in killing noxious insects. I doubt if it kills enough bees to work any noticeable injury to the bee-keeper. The scientific name is *Phymata erosa*, and it is fully described, with excellent illustrations, in my "Bee-keepers' Guide," p. 419.

Claremont, Cal., Aug. 22.

A. J. COOK.

RUNNING BEES BY BOOKS.

Bee-keepers tell me that I run my bees too much by the books; but my crop is over 60 lbs. per colony, spring count, and theirs are from 25 down to nothing.

L. L. TRAVIS.

West-Nicholson, Pa., Sept. 4.

[The proof of the pudding is in the eating.

—Ed.]



G. B., N. Y.—Bees are not likely to swarm from the hive without the queen, and I think you may assume that the queen is with the bees. If you can give them a frame of unsealed larvæ or brood from one of the mother colonies you can soon ascertain whether there is a queen in the hive. If some cells are built she must be present. If you can get any thing else we would not advise you to use candy for winter feed. It is early enough now so that you can feed sugar syrup. For particulars in regard to feeding, see "Feeding," in the A B C of Bee Culture.

O. L. H., N. Y.—The sample of brood you send is a little suspicious; and although it does not seem to have as much ropiness as it ought to have for foul brood, and also seems to lack the peculiar odor, yet it may be the real disease just the same. If you have only one colony I would take no chances. It often happens that we have brood die and exhibit exactly the same symptoms as shown in the sample sent, and that is what we call "pickled brood;" but it is so near like the other that it is almost impossible to distinguish it. The real difference is that one spreads throughout the apiary, and is contagious, and the other is not contagious; but where there is any doubt, as there certainly is in this case, I would treat it just the same as if it were foul brood.

J. R. S., Ohio.—1. Yes, a colony will winter safely in almost any locality in the shallow Danz. frames, single story. Indeed, colonies winter well in frames much shallower, like the Heddon, for instance. 2. We usually figure on having at least two-thirds of the frames in the brood-nest filled or partly filled with honey. For outdoor wintering, bees require more stores than those for indoors. For the former we figure on about 20 or 25 pounds; for the latter, 10 or 15. 3. We would not advise you to use a candy cake or candy of any sort for wintering, when combs of sugar syrup or honey of good quality can be had instead. Candy is used only in the winter, when such combs can not be obtained. If there is any doubt of there being a sufficient number of these combs, one colony should be fed liberally; and as soon as the combs are sealed they should be set aside to be used later when or wherever they may be required.

S. J. F., Iowa.—It is a rather difficult matter to judge an exhibit by points. Various judges use various scales; but in general you can scale something after this fashion: Call 100 perfection. Out of this allow, in case of comb honey, 25 per cent for good filling; 25 per cent for color; 25 per cent for the style of section; 25 per cent for the shipping-case, carton, or package. In the case of extracted honey a similar scale may be followed, allowing, say, 25 per cent for color, 25 per cent for style of package, 25 per cent for general display, and 25 per cent for label or other adorn-

ments. In the case of the best and largest display, then the scales would have to be rearranged—50 per cent, we will say, for the general quality of the individual packages of the exhibit, and 50 per cent for size, as quality and size are the only factors that figure in such a case. Each individual judge may adopt different scales. The scales above named are not necessarily the ones followed by the best of judges, but are merely suggestive. Where possible, the name of each exhibitor should be left off from his own exhibit, the exhibit being designated by number. Of course, if the judge is unacquainted with any of the exhibitors it would make no difference whether the name was on the exhibits or not; but where a judge knows the exhibitors it is a difficult matter to award the premiums according to actual merit. I heard one judge say once that Mr. A had excelled in every thing in a certain exhibit. "But," said he, "we will give him two or three first premiums, and then divide the other firsts up among the other fellows so they will not feel disappointed." The matter of sympathy and favoritism should have nothing to do in awarding premiums; for it is understood that merit is the only factor to be considered.

A. E. H., Mich.—It is not an uncommon thing for queens to be missing in colonies during the fall of the year, especially if they are a year or more old. Some queens play out within a year; others within two years. They die; and as eggs are not apt to be in the hive in the fall, the bees can not replace her.

J. C. B., Pa.—For particulars regarding the making of sugar syrup that will not granulate, see page 28 of our catalog, under directions, "How to Make," etc. The chief cause of granulation is feeding too late, or feeding a syrup one part water to two parts sugar. It should be fed early, and made in proportion of one part sugar to one of water.

W. G. A., La.—The brood you speak of is probably not foul brood. It is possible that it was poisoned, or that it had died as a result of poisoning during the spraying season. A good many farmers yet spray fruit-bloom when it is in the blossom. The result is, the bees carry off poisoned honey or pollen, and if this is used in the food given to the young larvæ it causes them to die and look very much like foul brood. See GLEANINGS for Aug. 1. If it is not ropy, and does not have the characteristic odor, then it is certainly not foul brood.

J. T. B., Pa.—You can winter bees under an open shed, but the hives should be either double-walled or packed. With the shed you describe in your letter you could winter bees very well, but you had better make it large enough to take more than three hives. Distance between each hive may be about 2 in., but packing material should be 4 or 5 in. all around the hives. All things considered, you had better put the money that you would invest in a shed, in double-walled hives, or place the bees in a dry cellar.

F. W. H., Iowa.—We know of no way you can tell which hive the queen came from after being found in one of the 15 supers taken off,

except to go over the hives and see which one is really queenless. This will consume a good deal of time, and there will be no surety about it until you can determine whether or not cells were built. Yes, in your locality you can raise queens as late as Oct. 1st, and get them fertilized; but the chances of their meeting drones would be much better in July or August than in the fall. It is much more difficult to get queens fertilized in the fall than in summer. You can take partly filled sections and place them in the upper story of a colony; and the bees below, if you give them time enough, will empty them out and store in the brood-combs.

M. S. Y., Iowa.—You can put an observatory hive in a grocer's show-window by closing the entrance; but about once in ten days it would be better to change the bees.



How do you like the series of illustrations in this number? We have "lots" more of them to follow.

PLAIN SECTIONS CONDEMNED BECAUSE TOO WELL FILLED.

A WRITER in the *American Bee-keeper* prefers old-style sections with insets, because the new style with no insets are too well filled; that is to say, a box having honey filled clear out to the wood is not as desirable as one where there is a line of cells not filled with honey next to the wood. There may be a difference of opinion on this point. As I have stated in an answer to one of Dr. Miller's Straws, plain sections can have either style of filling. The only difference would be the amount of crowding for room that is used.

BEES WITH DRONE HEADS.

MR. E. S. SNYDER, of Santa Fe, Ind., sends us samples of bees, extra good workers, from queens whose stocks have produced 100 lbs. of comb honey each. The peculiarity of these bees is that they have heads like those of drones; but their tongues are quite long—apparently longer than the tongues of ordinary bees. One would almost think, to look at their heads, that they were drones; but the fact that they could produce 100 lbs. of honey when other colonies are not making 25 lbs., seems to indicate that they are good workers. Taking it all in all, they are quite a novelty. We have sent for two of the queens.

PETRIFIED HONEY COMB.

MR. C. DISEREUS, of Cliffdale, Ill., sends us a sample of petrified honey-comb. It looks as if it might have been a chunk of wax that had been crushed together, making a piece about as large as one could hold comfortably in the palm of his hand. One side of the comb is squashed down so the base of it, or

what might be called the natural foundation, stands out very distinctly. The other side the comb, though mashed, shows the cells very distinctly. The stone itself has the color of ordinary sealing-wax; and the very remarkable thing is, that, even after petrification, the color of the original wax should have been so nearly preserved. There are exactly five cells to the inch; and there can be no question but that the sample before us is the comb of *Apis mellifica*.

There has been a desire in the past to stiffen combs; and perhaps some inventive genius will now put a few combs in a petrifying-spring. After they have been turned to stone he can extract from them to his heart's content. There might be just a little trouble encountered with the uncapping-knife, and just a little trouble from the great inertia in the extractor even when empty.

A PECULIAR KIND OF BEE DISEASE OR MALADY.

ONE of our subscribers, Mr. L. B. Smith, of Lometa, Texas, has a peculiar disease or malady that is making pretty bad work in his apiary. Whatever it is, it affects both the brood and mature bees. The former looks very much like foul brood, and the bees themselves die off by the thousands. One would naturally suppose that the real cause of this trouble was poison — something that the bees gathered; but Mr. Smith is very confident that this is not the cause. After some little correspondence we learn that the malady begins about the time watermelons appear in his vicinity, especially after they begin to rot, and continues with its greatest virulence about the time the melons are being grown; for he says there are many rotting melons, and that, as a general rule, as soon as these are gone the disease begins to disappear. But now, notwithstanding the melon season has been long past, the trouble is still going on. He has lost something like 35 colonies out of 80, so far, and still the bees are "dying by the thousands." Some colonies apparently recover before a relapse, and finally die off.

I should be glad to know if any of our other subscribers have noticed the same trouble following or during the time of growing fruit.

QUEENS FOR BUSINESS; THAT \$100 OFFER.

A FEW days ago a correspondent wrote, saying, "Your offer of \$100 is too high; and by the terms of the same it would be impracticable for any one to secure the prize, for the reason that it will take the breeder who produced her at least a year to determine whether she possesses all the desirable points named; and it will take a year or more for the purchaser to prove her qualities. By that time her usefulness will nigh be gone." There is a good deal in this. In talking with W. Z. Hutchinson, of the *Review*, recently, he gave expression to similar sentiments. So, taking it all in all, the maximum price we can put on queens would be something like \$25. We have already given \$10 apiece for a couple of queens whose bees did record-breaking work

in comb honey the past season. From one of these we hope to be able to find one that will reach the \$100 mark; that is to say, a queen with which *we* would not part for less than \$100.

But this talk about \$100 queens has been productive of a great amount of good. Honey-producers all over the country, as well as queen-breeders, judging from the scores of letters that have been received, have been and are selecting for the coming season breeders whose bees have done splendid work in sections. I doubt whether any thing else would have stimulated such a healthful state of affairs as our offer of \$100; and I will say now that, if the conditions are fully met, our \$100 is still ready to be paid over. We are on track of two more queens whose bees last season produced nearly 200 pounds of comb honey when the other bees in the same yard were doing practically nothing, showing that the season was generally a poor one. What might be expected from those same bees in a good season may be readily guessed; for it is bees that will get honey during a poor season that we want.

I hope the race for color has had its day; and while there have been several specimens of bees that have been good workers, as well as beautiful, the majority of those *we* have tested have had some bad traits, either in temper, swarming propensity, or a lack of hardiness for wintering. Let the matter of color be only a secondary consideration. Put first, ability to get honey; second, wintering qualities; third, disinclination to swarm; temper next, and color last of all. But, other things being equal, I should very much prefer gentle bees if at the same time they can have the other three desirable qualities. Color really amounts to nothing.

Of color or markings it may be said that, of whatever blood the queen may be, she must be pure, whether Carniolan, black, or Italian. A hybrid queen with an ancestry of hybrids back ten years *might* be able to reproduce her kind without sporting toward either the blacks or Italians. Dr. Miller has such a queen. Her bees outstripped every thing else in the apiary last season, and he is going to use her for a breeder.

Hybrids are apt to be more or less cross. It has been observed, I believe, that the cross or "snappy" kind are the ones that produce results in honey. Did you ever notice that it is often the "snappy" kind of people who can get out a big day's work, even though they are not, perhaps, the most popular among their fellows?

"ADVANCE, AUSTRALIA;" PICTURES, WHAT DO THEY MEAN TO US?

A FEW days ago a bulletin from Australia came to hand, and in it was a picture that brought forward to my own mind familiar incidents. It was a half-tone from a wash-drawing, and not from a photo. But notwithstanding the picture was made with pen and brush, there was something about it that was decidedly natural; and I therefore sent the bulletin to our engravers, and asked them to repro-

duce the picture on a little smaller scale. Elsewhere in this issue I present to you the result, reduced to a size so as to go into our new honey-leaflet, for there will be in it other companion pictures representing familiar scenes among the bees.

Let us now turn over to the picture. The humor of it is somewhat quaint as well as familiar. A lean, lank rustic is the "star" of the scene. Those hob-nails in the shoes; the toeing-in of the left foot; the wrinkles in the pants; the patch in the upper elevation of the same; the strings around the ankles; the ax under the arm; the Crane smoker emitting volumes of smoke; the Manum swarmer, the cover of which goes flippity-flop back and forth at every long stride of the runner; the bee-veil flowing backward over the shoulders, fanned by the artificial breeze; the old vest, ripped partly up the back, and unbuttoned in front; the belt that encircles the long lanky waist; the swarm in the distance hanging in the air, and the men urging greater speed—all these, and more, suggest scenes that are more or less familiar.

The man who, with brush and pen, made this specimen of awkward dexterity is, to my way of thinking, a real artist—far better than those who give us the so-called specimens of "art."

For aught I know, the long stepper may be in quest of *Apis dorsata*, for I can imagine nothing else that would cause any bee-keeper to take quite such long strides as our friend in Australia is taking. That he "will get there," there is no question, unless—unless he catches one of those hob-nail stogies in the underbrush that seems to be in his way.

Speaking about the honey-leaflet reminds me that I have a picture of a beautiful girl holding a swarm of bees, taken right from nature itself, with a camera. This and several others will be companion pieces to the runaway Australian, the purpose of which will be to illustrate bee-keeping in its various phases. Now that the A B C of Bee Culture is off my hands I shall have more time to work this up. The new leaflet will, as I have said, be printed in the finest style of the art, be mostly pictures, and will be entitled "Honey, from the Hive to the Market."

PHILADELPHIA CONVENTION NOTES.

MR. W. A. SELSER, the expert honey-man who has probably traveled more miles in quest of good honey than perhaps any other bee-keeper living, almost startled the convention in the course of some of the discussions by stating that, in his opinion, the sweet-clover plant was a "curse to the bee-keeper." A perfect buzz of surprise and protest immediately made itself manifest. Some even wanted Mr. Selser to recant; and then Dr. Mason, after his usual style, fired shot after shot at him; but still Mr. Selser stood invincible. He had sold large quantities of honey, and whenever there was the least amount of sweet clover in it, it spoiled it for his market. Dr. Mason exhibited a sample of what he called genuine sweet-clover honey. Quite a number of us sampled it, and considered it

first-class. But still Mr. Selser insisted that he wanted none of that in his. He could not sell honey that had a taint of sweet clover in it. He wanted pure clover and nothing else. In fact, I know personally that he paid 11 cts. for such an article when he could have bought clover with a little basswood in it for two or three cents less. There is no denying the fact that Mr. Selser has built up a demand for a gilt-edged article of comb honey, and especially for extracted honey in bottles.

HONEY FOR BREAKFAST.

At one of the sessions Mr. Francis Danzenbaker, of Washington, D. C., said it was getting to be quite the fashion in official families to have honey for breakfast. As Washington sets the pace for the rest of the United States, hope was expressed that the custom might grow over the country generally; and Mr. Danzenbaker was kindly advised to encourage the custom all he could.

ADULTERATION, AND A NATIONAL PURE-FOOD LAW.

Much was accomplished at this meeting in the way of setting on foot certain plans calculated to further the cause of a national pure-food law. A most valuable paper was read by E. T. Abbott, of St. Joseph, Mo., setting forth the result of his visit before the last pure-food commission; for it will be remembered that he and two or three others were appointed by the United States Bee-keepers' Union to represent bee-keepers at that time. Mr. Abbott placed great emphasis on the point that it was folly to ask for special legislation. What we need is a general pure-food law that would cover all forms of adulteration, so that all classes could unite in demanding its enactment. He explained further that a national law, even if passed, could not prevent adulteration within the States, but it could prevent the traffic in adulterated goods from one State to another. In other words, the New York concerns dealing in glucosed honey could not ship the stuff into another State. If there were no State law they could manufacture and sell within the borders of the State just the same. It was, therefore, necessary to see to it that anti-adulteration laws were passed in every State in the Union.

This paper called forth a most substantial indorsement from the members of the convention. A general desire was expressed by every one to have the same published as widely as possible in the great dailies of Philadelphia. A reporter of the *Daily Call*, who was present, and who manifested much interest in the proceedings, was appointed a committee of one to see what could be done in the way of getting this paper of Mr. Abbott's published, in whole or in part, in the dailies.

Mr. Selser, of Philadelphia, showed that a good State law, backed by honest officials, would almost entirely wipe out adulteration within the confines of the States. There was a time when honey was adulterated extensively in Philadelphia and throughout the State. Within the last three or four years there had been scarcely a sample of adulterated honey to be found anywhere in the stores because an

anti-adulteration law was passed three or four years ago; and following this there were arrests and convictions, with the result as above stated.

Dr. Mason called attention to the good work that had been done in Ohio by Pure-food Commissioner Blackburn, of Columbus. "We have," he said, "a good pure-food law, and an honest and energetic official to enforce it; and the result is, there is but little if any adulteration in our State."

FEEDING IN THE OPEN AIR.

There was quite a spirited discussion on this subject. Mr. Coggs shall happened to mention that, after his combs were extracted, they were hung up in the building for the bees to clean out. Some objected to this, as it would make a regular *furor* in the apiary; that they practiced the plan of putting combs in hives stacked up, leaving a small entrance at the bottom for the bees to carry the honey out slowly. This would not encourage the robbing tendency, yet at the same time it would accomplish the results desired; namely, get the extracting-combs cleaned up ready for use another season. But there were some among them—notably G. M. Doolittle and G. W. Whitcomb—who objected to even this practice; "for," said they, "if the robbing habit is once started among the bees it causes a great deal of annoyance to the apiarist, to say the least."

"A LITTLE STRENGTH."

At one of the evening sessions we listened to an address by G. M. Doolittle. He first read the third chapter of Revelation, and out of it selected as his text, "I have set before thee an open door. Thou hast a little strength." It would be impossible to give even a digest of this, and I would therefore refer our readers to a verbatim report that will probably appear in the *American Bee Journal*. The point emphasized by Mr. Doolittle was that great opportunities were before us—the "open door," and the "little strength" we have we should develop, and help our brother bee-keepers. He illustrated the talk with various amusing stories.

CAN A HIVE BE RUN FOR BOTH COMB AND EXTRACTED HONEY AT THE SAME TIME?

Mr. O. O. Poppleton did not believe that a comb-honey hive was also equally well adapted for extracting. A combined thing or machine adapted to a variety of uses was not as good for a certain specific purpose as one specially fitted for that purpose and nothing else. He had used the Langstroth, one, two, and three stories; but he now prefers what is generally known as the Long-idea hive, all in one story—hives containing 24 frames. He had used this for 30 years, and was well pleased with it. But he wished to emphasize the fact that it was adapted for *extracted* honey and not for comb. The frames were deep, or what would be called the square kind. He had tried in the mean time the two-story Langstroth, but was very glad to get back to his old Long-idea hive, for the simple reason that he could get more honey with it. If he were running for comb honey he would use the Langstroth hive.

W. L. COGGS SHALL ON THE WITNESS-STAND.

Mr. W. L. Coggs shall, who was present, was perhaps the most extensive bee-keeper at the convention. As he knew a heap about practical methods, in order to draw him out he was interviewed by the whole convention. When asked how many colonies he had—well, he did not know; but he estimated it was between 1300 and 1400. He was plied with dozens of questions; and while he was on the stand I asked him if his bees were always as cross as they were when I visited him. He laughingly said, in reply, that he "and the boys stirred up the bees on that occasion for Mr. Root's special benefit." When asked what kind of hive he used he said that he preferred the Langstroth, although he had used some others. He did not take very much stock in having hives in "straight and regular rows." It costs too much. He kept bees for the money he could get out of them. It was results he was after. Mr. Niver, who was quite familiar with his ways of working, added that Mr. Coggs shall studied carefully the shortest methods. Whatever plan would give him the best results in money, no matter whether it was orthodox or not, for the minimum of labor, that was the method he would use.

BEE-KEEPING AS A SPECIALTY.

Editor W. Z. Hutchinson read a paper on the subject of bee-keeping as an exclusive business. He took the ground that the business was a little too uncertain for one to put all his hopes in it; but it could be made to pay, and pay well, and be used as a sole means of livelihood, providing the business could be done upon a sufficiently extensive scale; but one with only 100 or 200 colonies had better have something else to tie to.

In the discussion that followed, there seemed to be a general indorsement of the position taken by Mr. Hutchinson. And there were in the room specialists who were making a good living off their bees with no other source of revenue.

CONVENTION PHOTOGRAPH.

At one of the sessions we adjourned to the front of the convention building, and assembled on the steps while W. Z. H., with his large new camera, took two "shots" at us. I have before me the result; and while W. Z. H. says it is not all he could desire, it might be a great deal worse. He has them for sale at 50 cts. each. Address W. Z. Hutchinson, Flint, Mich.

The street in which the photo was taken was very narrow, and poorly lighted; and it was difficult for any one to determine just how much exposure would be needed.

Your humble servant happened to stand by the side of Doolittle. The contrast is rather striking. Doolittle, large, pleasant-faced, over six feet tall, and weighing over 200 pounds, makes the chap beside him look small, insignificant, and cadaverous; indeed, I had not recovered from my car sickness. Some people and things appear to good advantage by contrast; but I do not happen to belong to this class when compared with our Borodino friend.



Your adversary, the devil, as a roaring lion, walketh about, seeking whom he may devour.—I. PETER 5:8.

Satan himself is transformed into an angel of light. II. COR. 11:14.

Since my Home talk in regard to devils taking possession of people in modern times, I have received many communications in regard to the subject; and a great many facts in regard to murders and suicides that are still going on together have been sent in to me. I need not tell you that almost every daily paper records how some parent murdered all the children; then the husband or wife, as the case may be, finally ended in suicide. Quite a few cases of this kind are recorded where the would-be murderer or suicide did not succeed in putting them *all* to death. Some few have been prevented from carrying out their murderous designs, and have afterward confessed (or claimed) that some spirit they could not exactly understand had got possession of them. Intemperance is usually at the bottom of it all, but not always. There are several other agencies, one of which I wish to speak about especially in this Home talk. And, by the way, let me remark that we are told in the papers that the spirit of Robert G. Ingersoll has come back to the world, and he tells us something about the future state through a spiritual medium. These statements have called forth sufficient attention to cause a little pamphlet to be published, entitled "Evidences of the Continued Existence of Man after the Change Called Death." Notwithstanding the full facts in the matter are subscribed and sworn to by affidavits, I would never for a single instant give a particle of credence to the statements. I do not mean to deny that every thing happened as narrated in the pamphlet; but I *do* deny that any *spirit* from the other or spirit world ever had any thing to do with it. The *talk* is astonishingly like Ingersoll's. In fact, it is exactly as Ingersoll was in this world; and if passing to another world makes no change in a man for *better* or *worse*, what possible *advantage* can there be in existence after death? Permit me to observe that Ingersoll uses profane language as a spirit; in fact, that comes in in one of his first salutations to the people in this world. In reply to questions he makes the following reply:

Yes, yes! and yet some of them see me in their hell—burning! burning! Brimstone and eternal damnation! How disappointed they will be! No leering devil here! No brimstone in this country. If there is, I haven't seen it nor smelt it nor felt it! They'd have to get a telescope to find a grain of it where we are now.

He does make a little concession, however, in the following words:

I find that I was wrong in thinking death might be the end, but I was right in saying there was no devil and no hell.

He also refers to the text at the head of this talk, as follows:

But there's no devil hiding here, or "going up and down seeking whom he may devour." Ha! ha! ha! ha! No, no. Instead of devils waiting to torment me, I found loving hands outstretched to me.

From the above it would seem that Ingersoll blunders as badly in the spirit world as he did while on earth; for the Bible nowhere makes the statement that Satan goes about as a roaring lion, etc., in the *spirit* world. This *present* world is his field of labor, and the *only* place, if I am correct, where he ruins mankind, both soul and body.

Now, friends, I have, since childhood, read with exceeding care every revelation claimed as coming from the spirit world, that gave us any reasonable glimpse of affairs beyond the grave; but I have never yet found any thing a bit more reasonable or sensible than the above extracts. It seems to me we have every possible evidence that every thing that comes from mediums and the whole domain of spiritism has the stamp of *earth* plainly and unmistakably impressed on it. There are curious and perplexing things, I grant you; but nothing that can not be reasonably supposed to emanate from the mind of some *living* being. The bright meteor, coming to this globe from the immense realms of space, brings us no knowledge of any thing new or foreign to this earth; and neither has any so-called communication from the spirit world added one whit to the realm of poetry, science, or a knowledge of the beyond.

Permit me to direct attention right here to an excellent book on this subject—that is, a great part of it is excellent. In some chapters it seems to me the author has become a little "rattled" himself on spooks and spirits. The book was written particularly to show that all the phenomena of spiritism, hypnotism, clairvoyance, etc., can be rationally explained without the help of spirits from another world in any shape or manner. The title of the book is, "The Law of Psychic Phenomena," price \$1.50 (A. C. McClurg & Co., Chicago, Ill.).

This book starts out by assuming that every person has two separate intelligences. You may, perhaps, remember in some previous writings of my own I have called attention to this matter—that there is a sort of second or involuntary self that looks after the general economy of the human being. The author of this book does not say so, but I suggested that this other self takes care of the respiration, beating of the heart, and makes the individual look out for sudden emergencies without his own will having any thing to do with it. Well, the author of this book calls these two intelligencies or *minds*, if you choose, the objective and the subjective. The objective takes notice of the world all around us through our five physical senses. It is the reason and common-sense part of our person. The subjective works more by what is sometimes called "intuition." While the objective remembers events wonderfully, the subjective goes away beyond, you might *almost* say into the realm of impossibilities. This queer second self reveals things in our dreams that we had forgotten. He has charge of the somnambu-

list, the clairvoyant, the maniac; but as a rule he knows nothing except what he has heard or seen, and his astounding memory does the wonderful things. I have room here for only one illustration. Perhaps all of my readers have heard of the mathematical prodigies who have appeared here and there in ages past. Zerah Colburn, of Cabot, Vt., has been written up, perhaps, more than any other. He was born in 1804. Without going to school, and, we might say, without instruction, he solved problems in mathematics in a way that startled the whole world. There seemed to be almost no limit to his mental feats in this direction. Somebody asked him how many minutes there are in 48 years. He answered, before the question could be written down, 25,228,800; and added, on his own responsibility, that the number of seconds is 1,513,728,000. Somebody asked him to give the factors of 247,483. He answered instantly 941 and 263. These multiplied together produce the former amount, and they are the only numbers that will produce it. Then he was asked to give the factors of 36,083, and he answered instantly there are none. The book I have mentioned gives quite a history of this remarkable man. He was asked to explain where and how he got the results, but he seemed unable to answer. His father traveled with him in different parts of the world, and they undertook to educate him, thinking it would add still more to his wondrous powers; but in this they were disappointed.

Now, this astonishing memory is called intuition, or the work of the subjective mind, if you choose. The world contains more or less wonderful phenomena which may be explained by this second self, to which the author of this book offers a very reasonable explanation, and I am satisfied that there is at least much truth in it. His explanation, as I have said, does away with lots of superstition. Now, so far I can give the book a most hearty recommend; but when it comes to telepathy and mind-reading, although I am open to conviction I have not a particle of faith in it, and I can not believe the stories that are told, even in the book I am telling about. I believe in wireless telegraphy and X rays, because they are clear plain science; but I do not believe one man can influence the mind of another—that is, in the way the telepathist is said to do—whether he is one foot away from the person, or a hundred miles. The author of the book says he can make certain people *dream* certain things, even when they are sleeping miles away. Now, this thing can be easily proved or disproved. Let some educated scientific men, such as we have at our experiment stations, for instance, witness careful experiments in the matter. If they say there is truth in it, then I will humbly beg pardon of Thomas J. Hudson, L.L.D., Washington, D. C., author of the book I have been talking about.

Dear friends, at this stage of my talk I discover that the story I had to tell you, bearing on the two texts at the head of this Home Paper, will have to be deferred till our next issue.



DIGGING POTATOES.

Yesterday, Sept. 22, I noticed that our Maunum's Enormous, Carman No. 3, Maule's Commercial, Queen of the Valley, and Sir Walter Raleigh potatoes had died down so there was no need of waiting any longer for digging. I soon ascertained that our big team could be spared from the business of the factory the next day; and it being Saturday, and no school, I could have the boys, who have picked up for so many years, to help. The ground was just dry enough after a recent soaking rain. In fact, it was a little wet in the morning; but toward noon it got to be just right. The Dowden digger worked to perfection, leaving the potatoes nicely on top of the ground. The Enormous potatoes, I think, died down with the weather or blight just before they were mature. The crop was not very large, and somewhat scabby; but the Carmans No. 3 were just beauties. Our neighbor, Dan White, of New London, O., happened to make us a visit, and he spent a good part of the forenoon in examining the nice, handsome, smooth, shapely Carmans, and declared they were the finest show of potatoes, just as they lay on the ground, that he ever saw in his life, and this is an "off year" for potatoes. To my great surprise they yield rather better than Maule's Commercial—the one that cost me \$10 for a single tuber. The Commercials are rather larger; but the potatoes are too crooked in shape, and the eyes are very deep. But in quality, neither one compares with Mills' Prize. But, oh dear me! Mills' Prize, on our ground, has developed a very sad trait. It made me think of a young man who just begins to think some special girl is an angel, all but the wings. He considers her just perfect. In his eyes she is without flaw or blemish. Some time after (may be after they are married) he sees an imperfection, and is forced to believe that she is human after all. What a sad drop it is to his feelings!* Well, when I found Mills' Prize such a thrifty grower, so wonderfully prolific, and so magnificent in quality, I was going to mark it perfection among late potatoes. Lo and behold! right beside the Carmans that are not scabby a particle Mills' Prize are, many of them, very bad indeed. The Queen of the Valley is a very fine potato, and is very prolific, and we might think it very fair if we had not had a glimpse of the

*I feel constrained to add in this footnote, that, in the case of the young lady, the trouble is not beyond remedy. Very likely the young husband can not do it, and perhaps he is not the proper one to undertake it; but Christ Jesus who cleanseth from *all* sin, is both able and willing to cure all our infirmities; and, by the way, I feel sure we are going to succeed in getting rid of this thing that troubles us in growing nice potatoes. The Mills' Prize, on other soil, grows free from scab; and I believe that, when we understand the matter properly, it may be grown free from scab in any soil. The seed was not treated before planting, because it did not seem to need it. I am sure I can do better next time.

Carmans No. 3 right alongside. The Sir Walter Raleigh is very much like the Carman. None of us can tell one from the other, if they get mixed. I believe both are seedlings of the old Rural New-Yorker.

By the way, when one really makes it his study and business, how he can learn to know potatoes at sight! When we were digging, there was once in a while a hill among the Carmans with a long potato unlike any we have in our grounds. I had first thought it was a volunteer that came up in the row; but we found too many of them. I finally carried one to Frank, and asked him if he could tell what kind of potato that was. He said, almost at once, "Why, that looks like a Monroe Seedling." And then I remembered that my cousin in Tallmadge, who sold me the Carman No. 3, grows Monroe Seedlings almost exclusively, and these few had gotten in among the Carmans, and were not noticed at planting-time. I went to all the five pickers, showed them a sample of the Monroe, and had them watch carefully, and throw them out as they picked them up. We are doing this with all our potatoes for seed, in order that we may not have even an occasional potato not true to name among those we send out.

Before night we had put away in the cellar, all carefully labeled, over 300 bushels. But the big team was tired, and the men and boys were tired too, I assure you; and I was tired. Any good elevated digger makes pretty hard work for two horses, especially if the potatoes go down in the ground pretty well. Mrs. Root has complained so much about potatoes being "greened" by getting sunburned that I planted them extra deep this season; and as we do very little hilling up, a large amount of dirt had to be elevated in order to get all the potatoes and not cut any of them. There is quite a difference in varieties in regard to this fashion of going down deep in the ground. For instance, the Queen of the Valley would frequently produce a long potato, and grow it standing on end. Now, unless the digger went very deep it would cut off the lower end of a big potato. The Bliss Triumph, Early Ohio, and most of the extra earlies, are very much easier to dig than the heavy-yielding large late potatoes. Two good stout horses, however, will work the Dowden digger very well if you let them stop and rest occasionally while the potatoes are being picked up.

BUSH LIMA BEANS.

Where there was a hill of potatoes missing, we had the boys put in a hill of beans. We had some Best of All that were three years old that we were afraid would not grow, so we tried them among the potatoes. Well, every one of them grew—at least it seemed so—and they grew so luxuriantly that they were much like so many weeds among the potatoes. Where only a single hill is missing I shall hereafter not plant anything. If two hills fail side by side, I do not know but it might do to put in one hill of beans. Well, besides the Best of All beans we put in a few hills of Burpee's bush lima, and they did exactly as

they did before on this same creek-bottom land. They produced a tremendous amount of foliage, and some blossoms, but not a bean. On our yellow clay upland we get big crops of bush limas without fail; but we can not get limas of any kind on the creek bottom—"nothing but leaves."

By the way, we have this season tested an improved bush lima sent out by T. W. Wood & Sons, of Richmond, Va.; and I am pleased to report that they are quite a little larger than the old original *Henderson* bush lima, fully as prolific, and considerably earlier than the Burpee; and I do not know but they are just as good in quality as the latter. In size they are about half way between the little bush lima and the Burpee. They ought to take the place entirely of the small bush lima.

"SWARMING" THE GRAPEVINES.

In the new edition of the A B C book it will be found my grapevine project for shade has been ruled out. Ernest objected to the vines as being in the way. Our apiarist, Mr. Wardell, also objected, and Ernest submitted the matter to some of the great lights—Dr. Miller and others (I wonder if the doctor will get mad at this); and they all decided that, although grapevines are a very fine thing to have in their proper place, they did not want them around and over the hives. But I am considerably like the noted woman; I have "my own opinion still;" that is, I do think a grapevine apiary is a beautiful thing, and a good thing for one who has a garden, and, say, a dozen or more colonies of bees; and what I am getting at just now is that our 500 vines, planted about 25 years ago, are still growing, almost every one of them, and bearing immense crops year after year without any entire failure, and hardly a poor crop; and they have the least attention of anything that I know of in the way of gardening or fruit-growing—no cultivation whatever. The vines are simply trimmed a little each winter, and tied up. Of course, Concord grapes do not bring much money; but even at the very low price of 1½ cts. per lb. we are getting quite a little income from our grapes. We advertised them once in our county paper; and, as an inducement to buy largely, we offered 50 lbs. or more for 1¼ cts. per lb.; and only 1 cent per lb. where the parties came and picked them themselves. One notice in the paper has sold something like a ton of grapes. I just had the boy weigh the crop on one vine, and it weighed 16½ lbs. This would be about 25 cts. for each vine, and they stand only 8 feet apart each way. This would be 680 vines to the acre, representing a crop worth \$170.

What a wonderful thing that Concord grapevine is, any way! Great bunches of beautiful luscious fruit with so little effort, and *always* a crop! May be the number of dead bees around the hives has had something to do with making them bear, and perhaps keeping the grass down with a lawn-mower has furnished some fertility in the way of mulch, for we never carry any of the grass off from the yard. When the *Rural New-Yorker* called for a donation for Mr. Bull, the old gentle-

man who gave the world the Concord grape, I decided to contribute \$10.00; but, like many other things, it was neglected, and then forgotten until our old friend was dead and gone. He died a poor man, almost in need of the comforts of life. It seems to me that few persons have conferred a greater boon on humanity than did Mr. Bull in giving the world this wonderful grape that now furnishes cheap fruit for men, women, and children, not only in the cities, but in almost every little town in the United States. May God help us to remember better such benefactors of the human race, and to remember them, too, while they are living, without waiting till they are gone. My friend, with very little effort you can have a grapevine. If you haven't any, get right at it this fall, and plant one. Train it up on your barn, chicken-coop, fence, or house. It will grow anywhere, and does not need even a square foot of ground. Then go to work and train it, and study its habits, and see how easily it yields to training just where you want it.

Concord grapevines can now be had of almost any nurseryman for five or ten cents apiece; and I have had them offered to me by the thousand for the insignificant price of *one cent each*. These low prices for the vines are possible because it is such a strong-growing thrifty variety. It requires scarcely any effort to grow the little vines from cuttings, just as it is little or no effort to grow the fruit; and the vines will commence bearing, usually, at the second year.

THE BUCKWHEAT CROP, AND THE LOCALITIES WHERE IT IS MOSTLY GROWN.

We clip the following from the Government Crop report for September:

BUCKWHEAT: Condition.—The average condition of buckwheat on Sept. 1 was 75.2, as compared with 93.2 last month, 88.8 on September 1, 1898, 95.1 at the corresponding date in 1897, and 88, the mean of the September averages for the last ten years. In New York and Pennsylvania, which together produce about five-sevenths of the entire crop, there was a decline of 27 and 15 points, respectively, during the month. In Maine, Michigan, and Wisconsin, the only States having 20,000 acres or upward in buckwheat, the condition declined 6 points 20 points, and 4 points, respectively.

It would seem from the above that the price of buckwheat is likely to keep up. I do not know how accurate these statistics are; but now I can understand why York State and Pennsylvania have so much to say about buckwheat honey. It is raised considerably in Ohio, but mostly in little patches. I notice most of our buckwheat flour comes from Pennsylvania. I wonder if Michigan and Wisconsin people get as much honey from it as they do in York State and Pennsylvania.

GOVERNMENT STATISTICS IN REGARD TO POTATOES.

POTATOES: Condition.—The average condition of potatoes on Sept. 1 was 86.3. This shows a decline of 6.7 points during August, but the condition is still 8.6 points higher than on September 1, 1898, 19.6 points higher than at the corresponding date in 1897, and 9.3 points above the mean of the September averages for the last ten years. The decline during August extended to all the principal potato-growing States, being 10 points in New York and Ohio, 8 in Pennsylvania, 20 in Michigan, 5 in Illinois, 3 in Iowa, 9 in Wisconsin,

and 4 in Minnesota and Nebraska, these being the States having 100,000 acres or upward in potatoes.

It would seem from the above that the August drouth was almost universal the United States over; and had it not been for this, potatoes would have been a larger crop than last season. I notice that within the last few days the daily papers quote the best white table potatoes at 55 to 60 cents, which is certainly a very fair price if the growers realize that much.

GOOD ROADS.

At present writing, Sept. 30, there is a tremendous activity all around Medina, on the good-roads movement. Carloads of slag and broken limestone are on the sidings right near our factory, and farmers with teams are taking the material on every main road leading out of Medina. Our own big team is just at present grading the street in front of our factory, on the north; and masons are at work putting in curbstones; piles of vitrified brick for the gutters lie on the sidewalk, and we expect to have a different order of things before the muddy season comes. The pleasant thing about it is, that it is *voluntary* work. Everybody is helping, and everybody is working hard, for everybody is doing a work that will be abundantly appreciated, not only by himself, but by all his neighbors, when the muddy season is on us again. We first grade the roads, making ditches two or three feet deep along the sides. These ditches will give ample drainage. Then the top of the road is nicely rounded over. Then we put on, first, on the clay, five or six inches of slag; then enough broken limestone to make a good plump foot. The roadway is wide enough so that we have ample room for a dirt road and a stone road. In summer everybody prefers to travel on the dirt road, as it is easier for the horses' feet; but whenever it rains, then all take to the stone road until the dirt road is dry enough to travel on without cutting it up. When you get into town, or very near it, where teams are passing so frequently that a 12-foot stone road would not accommodate, then we make it 24 feet wide.



ROBBING SICK PEOPLE; CURING PEOPLE HUNDREDS OF MILES AWAY, WITHOUT GIVING THEM MEDICINE OR ANY THING WHATEVER.

One of the latest fads seems to be what is styled in the advertisements "Modern Miracles," or "absent method" of treatment. Some great professor has a wonderful *magnetic* power. I hope somebody knows what this means. Iron and steel have magnetic properties, but not human beings. Well, never mind. These magnetic healers send out most astonishing testimonials. Jesus, at least once in his ministry, healed a nobleman's son when he was quite a distance from the patient.

These new professors do the same thing, not only every week, but at every hour of the day. I have sometimes surmised they cure people without giving them a thought. The papers give us pictures of these wonderful healers. How wise and "magnetic" they look! I think that must be the word. Do you ask me to explain how it is that people get well after sending the professors money? Why, it is in exactly the same way that Electropoise and Oxydonor cure. The patient gets it into his head that all this great professor says is true. Some of the neighbors get the same insane idea that this man in question has some wonderful miraculous power. They talk it over and become excited about it, especially in reading how the blind have been made to see, the lame to walk, and all that. It does not seem to make much difference what the malady is, for we are told the most stubborn diseases give way like "magic." Now, this whole business is a disgrace to the present age and present scientific attainments. Where are our schools and colleges? where are our ministers of the gospel? To be sure, it is the business of *ministers* to help expose such frauds. These charlatan professors are bad men, every one of them. A great part of them never make any *professions* of Christianity. You remember I have already told you about the man in Arkansas who thanked God for whisky, and says he gets drunk whenever he feels like it. But people who know this will have it that he has a wonderful healing gift, and *send him money*. A lady sends me an advertisement of the great Nevada healer, of Nevada, Mo., and says it is spreading in her neighborhood, and like reports are coming from other "healers" from almost all parts of the United States. People have plenty of money to send to these thieves who are robbing sick people; but when the calls come through the daily papers for help for the starving people of Porto Rico, everybody seems to be hard up, and no one has even a *cent* to spare. May God help us!

Special Notices by A. I. Root.

GARDENING IN OCTOBER.

As a rule there are not many seeds to be planted during this month; but in some localities it is the very best time to sow wheat, because it better escapes from the fly. But you can sow rye everywhere and any time; and I would put in either wheat or rye on every piece of vacant ground. It looks pretty, it is good for poultry, and it is worth all it costs to plow under in the spring. I am beginning to have considerable faith in plowing under a heavy growth of wheat since my success in growing potatoes in that way. Some might think it "wicked" to plow under a heavy growth of wheat; but the wheat costs little if any more than rye, and I am inclined to think it is worth more. Of course, you can go on with many kinds of gardening if you have sashes or even cotton cloth. The cotton cloth works beautifully along in the fall when you simply wish to keep off frosts or freezes; but when there are considerable falls of snow, especially snow and rain together, the cloth is "not in it." At such a time you will wish you had glass; but for many hardy plants such as cold frame cabbages, strawberries, lettuce, etc., the cloth answers admirably. It is better than glass in one respect, for the plants never get too hot in the middle of the day, even if you forget to roll up the cloth. Just

now I am planning a cold-frame bed about 30 feet square so I can use *either* cloth or glass. Whenever it rains, no matter what month in the year, I do not want either cloth or glass. I expect to have the cloth rolled up under shelter on the north side of the bed when it rains or when it is not wanted; and the sashes will also be under cover on the south side of the bed when they are not needed over the stuff. In all moderate weather I would simply roll down the cloth and roll it up again, which is ever so much less work than handling sashes. But during severe freezing weather the sashes will be in place; and when it is "awful" cold I can use the sash and cloth both. I shall use it principally for growing high-priced strawberries. When the strawberries are in full bloom (I expect them to blossom a month ahead of those outdoors), the cloth will protect the blossoms from frost; and when the season is exceedingly hot in the middle of the day at bearing time, I shall roll down the cloth to protect the berries from being scalded as they were during the season just past, when it was terribly hot. I have tested partial shade for strawberries already, and I am sure it is a big advantage for a few hours in the middle of the day—at least when it is very warm.

PLANTING OUT SMALL FRUITS AND NURSERY STOCK IN OCTOBER.

We plant more or less strawberries every year in October, and we rarely have a failure; but I confess that it needs better soil, and you will need to take more pains with the work than at any other season. If you have tried it, and have succeeded during former seasons, then go right on with your planting; but if you have not, I would advise you to test your soil as well as your own skill on a small scale before you do much of it. There is something peculiarly fascinating to me in seeing strawberries and other hardy plants grow when everything else is dying; and with a little protection, such as the cloth cover, during frosty nights, you can have a magnificent garden of hardy plants through October and November. In regard to planting general nursery stock in the fall instead of the spring I would say, as I have said with strawberries, if you have tested your locality and your skill in former years, and know they are all right, then go ahead. The apple-tree that bore two nice apples the first year, and seven the year after, was planted out in the fall; and I rather like fall planting for almost all kinds of fruit trees. There is not a liability of neglecting it till it is too late, and there is no trouble about plenty of moisture after the trees are put out. Besides, you have plenty of time to do the work well. If your soil is good and rich, and well undrained, and worked up fine, there is hardly a chance for failure. Pound the dirt down around the roots of your trees as hard as you can hammer it with a pounder. We have always had excellent success in planting out basswood-trees in the fall. We have a nice lot of small seedlings of our own growing. Price 5 cts. for 1; 30 cts. for 10; \$2.00 per 100. If the above are wanted by mail, 8 cts. for 1; 35 cts. for 10; \$2.25 per 100. The above are for plants one foot and under. If you want larger ones, see our catalog, mailed on application.

ADVANCE IN SPINACH SEED.

With the general advance in so many commodities, it is not at all strange that staple seeds are going up. Spinach seed that we have been offering in 10-lb. lots at 12½ cts. is now just double that price—that is, 25 cts. per lb. is the best price we can make; and even for lots of 10 lbs. we can not do better than 20 cts.

PRICES ON POTATOES FOR IMMEDIATE SHIPMENT.

On next page are prices for such potatoes as we have dug ready to ship. Some other varieties not yet got into the cellar will be priced a little later. If you order now, there will be no danger of freezing in transit, and the prices are often quite a little lower than they are in the spring. Carman No. 3 and Sir Walter Raleigh we think are specially reasonable at only \$2.50 per barrel; but we have a large stock of both, and so we offer them low. There will be a few seconds, but not very many, as they grow so uniformly large and perfect. Our seconds are almost always sold long before spring so if you want them you had better put in your order at once. Please remember if you buy seconds you must take your chances on getting some scabby potatoes; but many of them will be first in size and in every other respect except being scabby; and if you treat them at planting time with corrosive sublimate my experience is they will be as good as perfectly clean potatoes. They do not look

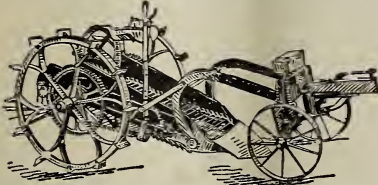
quite so nice, and a good many people are afraid to use them for seed, even after being treated. I have tried the treatment with corrosive sublimate for several years, and I believe it kills the fungus completely.

| NAME. | 1 lb. by mail. | 3 lbs. by mail. | 1/2 peck. | 1 peck. | 1/2 bushel. | Bushel. | Barrel—11 pk. |
|-----------------------------|----------------|-----------------|-----------|---------|-------------|---------|---------------|
| Red Bliss Triumph..... | 18 3/4 | 40 25 | 25 40 | 40 75 | 1 25 | 3 00 | |
| Bovee..... | 18 3/4 | 40 25 | 40 75 | 1 25 | 3 00 | | |
| E Thoro'bred, Maule's..... | 18 40 | 20 25 | 60 1 00 | 2 50 | | | |
| Early Ohio..... | 18 40 | 25 40 | 75 1 25 | 3 50 | | | |
| Burpee's Extra Early..... | 18 40 | 25 40 | 75 1 25 | 3 50 | | | |
| Freeman..... | 18 40 | 20 35 | 60 1 00 | 2 50 | | | |
| New Queen..... | 18 40 | 20 35 | 60 1 00 | 2 50 | | | |
| Monroe Seedling..... | 15 35 | 20 25 | 40 75 | 2 00 | | | |
| Rural New-Yorker No. 2..... | 15 35 | 20 25 | 40 75 | 2 00 | | | |
| Mill's Prize..... | 15 35 | 20 25 | 40 75 | 2 00 | | | |
| Carman No. 1..... | 18 40 | 20 35 | 60 1 00 | 2 50 | | | |
| Carman No. 3..... | 18 40 | 20 35 | 60 1 00 | 2 50 | | | |
| Sir Walter Raleigh..... | 18 40 | 20 35 | 60 1 00 | 2 50 | | | |
| State of Maine..... | 15 35 | 20 25 | 40 75 | 2 00 | | | |
| Manum's Enormous..... | 18 40 | 25 40 | 75 1 25 | 3 00 | | | |
| New Craig..... | 18 40 | 25 40 | 75 1 25 | 3 00 | | | |

Seconds of any of the above will be half price.

Advertiser's Department of Short Write-ups.

How are you Going to Dig your Potatoes?



It is time in most places to be digging potatoes; and, in fact, in some places it is past time. If you want something that will put the potatoes *all* on top of the ground, and do it, too, with one good strong team, you probably can not do any better than to use the Dowden potato-digger, made by the Dowden Mfg. Co., Prairie City, Iowa. Drop them a postal card, and they will cheerfully give you all the particulars, answering every question anybody will probably ask in regard to the machine. Mr. A. I. Root, of the A. I. Root Co., is using one with excellent satisfaction in digging his crop of potatoes grown expressly for seed.

Poultry Supplies.

Years ago, when I first started furnishing implements for bee-keepers I sometimes used to lament that there was no institution for furnishing poultry-keepers and egg-producers complete outfits for their business, such as were then offered to bee-keepers. Well, of late I have been agreeably surprised to see large fine catalogs, illustrating every thing that the poultry-man can possibly want, and at exceedingly reasonable prices. Just now I have looked over with great interest a catalog, from the Reliable Incubator Co., Quincy, Ill. It contains 150 pages, and they offer every thing from a simple egg tester up to a full-grown poultry house—no, no! I do not quite mean full-grown; but they offer a poultry-house in the flat, of the most approved pattern, including door and window, nest-boxes, roosts, and all, for only \$20.00. They make these in such quantities that they furnish them painted, at complete, and as cheap as the ordinary person remote from the lumber-camps could purchase the material for—yes, at times for *less* than they could buy even the rough lumber for it. It is put together with hooks and eyes in such a way that one can set it up in a few minutes without even driving a nail. I think it will pay every poultry-grower to send for their catalog, and look at the pictures. It will give him some hints, even if he does not buy a cent's worth of the company.—A. I. R.

GOLDEN ITALIAN QUEENS.

Virgins our specialty - - 40c each, or 3 for \$1.00.
Gardiner L. Ellis, - - - Millsboro, Del.

Wants and Exchange.

Notices will be inserted under this head at one-half our usual rates. You must say you want your ad in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over ten lines will cost you according to our regular rates. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—For cash, No. 1 white honey in Danz. 4x5 plain sections. Write for particulars. Four sizes of Prize cartons for comb honey, and 66-page book, "Facts about Bees," for 6 cts. in stamps.
F. DANZENBAKER, Box 66, Washington, D. C.

WANTED.—To exchange a beautiful parlor heater (direct from factory) for beeswax.
L. L. ESENHOWER, Spring City, Pa.

WANTED.—To exchange 3-band or gold:n queens bred in separate yards, tested or untested, for any thing useful to a bee-keeper.
JNO. M. DAVIS, Springhill, Maury Co., Tenn.

WANTED.—To exchange Barnes No. 7 improved scroll-saw (price when new \$15), in good condition, for Cowan rapid reversible extractor in same condition, or offers. Address
W. J. FOREHAND, Fort Deposit, Ala.

WANTED.—To exchange Barnes combined saw and 38-40 caliber Mar in repeating rifle.
ROBERT B. GEDYE, La Salle, Ill.

WANTED.—To buy or rent a small farm in a good location for bees, with a bee-yard on place.
J. E. HENDERSON, Elm Grove, Ohio Co., W. Va.

WANTED.—To exchange piano, organ, graphophone, or other articles for first-class sections, comb foundation, queen and drone traps, Clark's smokers, and other bee-fixtures. Address
F. C. BREWER, Parkersburg Pa.

WANTED.—To exchange an X-ray apparatus, in good condition, for typewriter. For particulars, address
R. M. MURRAY, Ada Ohio.

WANTED.—To sell or exchange a coop of homing pigeons for honey, brood or extracting combs, hives, or other offers.
C. H. LOTHROP, Everett, Mass.

WANTED.—To exchange bees for barred, white, and buff Plymouth Rocks. Also sweet-clove seed at 5 cts. a package.
MRS. A. A. SIMPS N, Swarts, Pa.

WANTED.—Bushel of papaws. Send price, etc.
HENRY WILSON, Box 441, Clinton, Ill.

WANTED.—To pay \$5 00 for description of best bargain in small farm where white clover and basswood will profitably support 100 colonies of bees
C. L. MICHAEL, Upton, W. Va.

WANTED.—To exchange a few bushel- of sweet-clover seed for untested Italian queens
R. GOULD, Crawford, Miss.

FACTS About Bees.

REVISED EDITION.

How to get
GILT-EDGED HONEY
Send 2c stamp to
THE A. I. ROOT CO.,
Medina, Ohio,
or F. Danzenbaker,
Box 66 Washington, D. C.



FOR SALE.—\$400; easy terms. Ten acres improved. Suitable for bees, poultry, fruit, and gardening; fine bearing peach-orchard; plums, cherries, pears, figs, and strawberry-patch; adjoining the magic city of Fitzgerald, Ga.; old soldiers' colony. The fruit will pay for the place in two years. Climate fine.
Enquire of K. L. CHERRY, Fitzgerald, Ga.

FORTY PICTURES.

The editor of the Bee-keepers' Review, in July last, spent nearly three weeks with note-book and camera among the bee-keepers and supply-manufacturers of Wisconsin, bringing home with him many items of interest and value, and about forty views of apiaries, hives, factories, etc., all of which will eventually find their way into the Review. Arrangements have also been made with some of the best bee-keepers of Wis-

consin to describe, in the Review, before the opening of another season, the methods whereby they have been so successful. If not a subscriber send \$1.00, and the Review will be sent you from now to the end of 1900—you will get the rest of this year free. You can also get the Review from now to the end of 1900, and one of those queens of that superior stock that I have been advertising, for only \$2.00.

W. Z. Hutchinson, : : : Flint, Michigan.

BEE-SUPPLIES!

ROOT'S GOODS AT ROOT'S PRICES.

Pouder's Honey-jars, and every thing used by bee-keepers. Low freight rates; prompt service. Catalog free.

W. S. Pouder, 512 Mass. Av., Indianapolis, Ind.

SAY! Did you know the **Western Bee-keeper** has changed hands? C. H. Gordon is now editor and publisher. . . .

Wanted Every bee-keeper, large or small, to send 15c for 4 mos. trial. Sample copy free. .

47 Good Block, : Denver, Colorado.

In writing, mention GLEANINGS.

Better than Ever

Am I prepared to furnish every thing needed by the up-to-date bee-keeper, all goods manufactured by The A. I. Root Co., shipped to me in car-lots, and sold at their prices. Send for illustrated 36-page catalog FREE. Address

GEO. E. HILTON, Fremont, Newaygo Co., Mich.

Dovetailed Hives,

Sections, Extractors, Smokers and every thing a bee-keeper wants. **Honest goods at close honest prices.** 60-page catalog free.

J. M. JENKINS, Wetumpka, Ala

Queens by Return Mail.

Daughters of best imported Italian queen mothers; reared by Doolittle method: warranted purely mated to drones of imported stock from a different source—hence, a direct cross. Fourteen years as a honey-producer on a large scale has taught me what good queens mean to the producer, as well as how to rear them. Price of queens 50 cts. each. Safe delivery and satisfaction in every case, or money refunded.

L. H. Robey, Worthington, W. Va.

SWEET-CLOVER SEED in the hull for sale at 5 cts. per pound. For orders of 50 lbs. or more, address Jos. SHAW, Box 64, Strong City, Chase Co., Kan.

QUEENS, QUEENS, QUEENS. By Return Mail.

Bred from imported mothers; dark leather-colored stock; extra honey-gatherers; also from light yellow and albino strains at very low prices. My stock is of the best. Forty years' experience warrants me in saying this.

| | | |
|-----------------------------|--------|---------|
| Select tested..... | each, | \$1.50. |
| Warranted purely mated..... | each, | .75. |
| Warranted purely mated..... | six, | 4.00. |
| Warranted purely mated..... | dozen, | 7.00. |

Send for 40-page catalog of bees and queens; also a full line of bee-keepers' supplies, including The A. I. Root Co.'s goods at their prices.

W. W. CARY, - Lyonsville, Mass.

CHAS. ISRAEL & BRO..

486, 488 & 490 Canal St., Corner Watts St., N. Y.

Honey and Beeswax.

Liberal Advances made on Consignments.
Wholesale Dealers and Commission Merchants.
Established 1875.

Queens. I will be ready as usual to furnish queens the coming season. Many unsolicited testimonials tell of the superiority of the Laws strain of FAULTLESS 5-BANDED WORKERS. BREEDING QUEENS always on hand. Price \$2.50 each. I am also breeding the leather-colored stock from imported mothers. Tested queens of either strain, \$1.00 each; 6 for \$5.00. Untested, 75c each; 6 for \$4. Queens ready in season.

W. H. LAWS, Lavaca, Seb. Co., Ark.

BEE-SUPPLIES.

ROOT'S GOODS--ROOT'S PRICES

Langstroth hives, Muth honey-extractors, etc. WE carry a complete line of Root's goods and sell at their prices.

Muth's Square Glass Honey-jars

are just the thing you want now to develop your home market for your extracted honey.

To Parties in the South

we offer a big saving in freight, send us your order and be convinced. Catalog for asking.

C. H. W. Weber, 2146 Cent. Av., Cincinnati.
Successor to Chas. F. Muth & Son and A. Muth.